

# Chemical Age

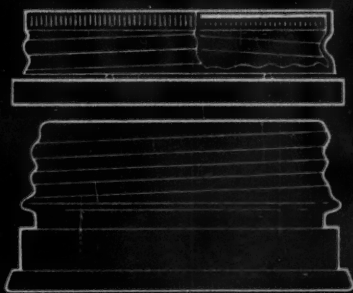
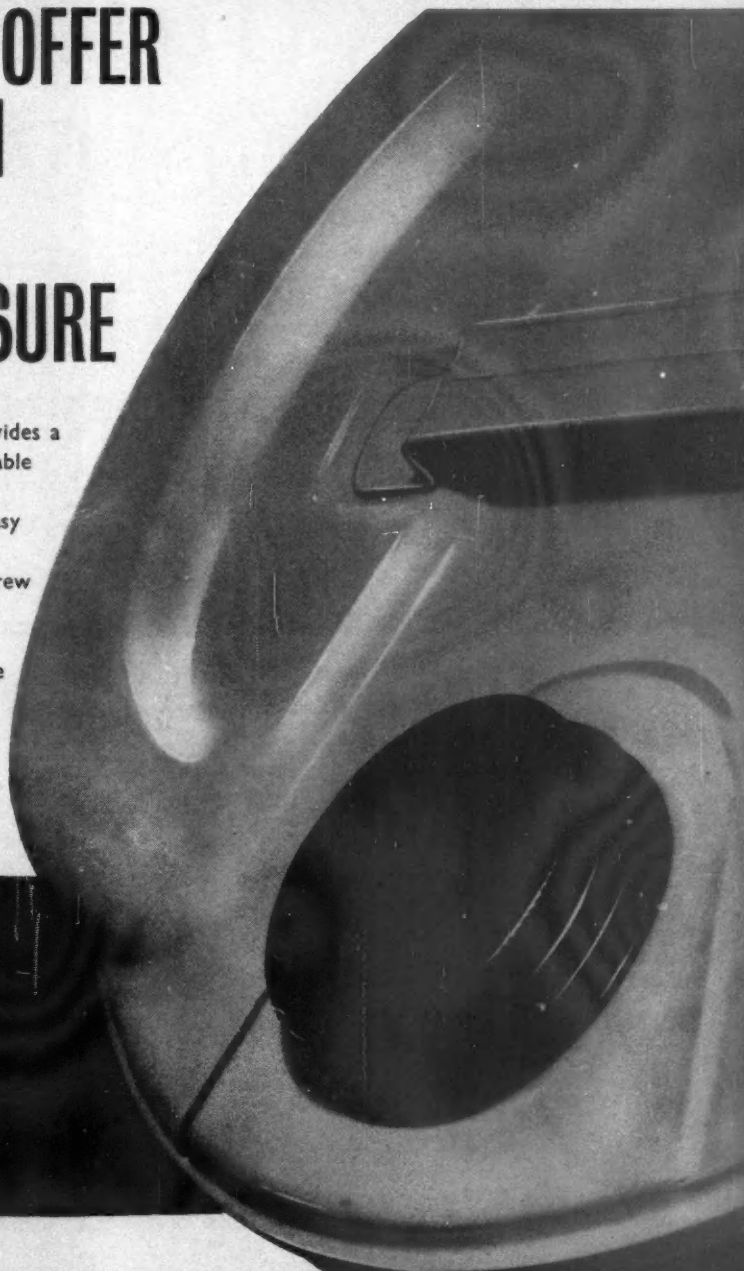
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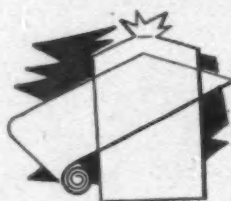
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# INDEX TO ADVERTISERS

The first figures refer to advertisements in Chemical Age Directory & Who's Who, the second to the current issue

Page	Page	Page	Page	Page	Page
A.P.V. Co. Ltd., The	—	163 Brotherhood, Peter, & Co. Ltd.	—	154 Dowlow Lime & Stone Co. Ltd.	—
A. W. Instruments (Guildford) Ltd.	—	Brough, E. A., & Co. Ltd.	—	127 Dryden, T., Ltd.	—
164 Acalor (1948) Ltd.	—	Brown, N. C., Ltd.	—	Dunlop Rubber Co. Ltd. (G.R.G. Dunclad)	—
African Pyrethrum Technical Information Centre	—	Bruno Pahlitzsch	—	E.C.D. Ltd.	—
148 Aimer Products Ltd.	—	132 Bryan Donkin Co. Ltd., The	—	Electric Resistance Furnace Co.	—
121 Air Products Gt. Britain Ltd.	—	Bulk Liquid Transport Ltd.	—	Electro-Chemical Engineering Co. Ltd.	—
Air Trainers Link Ltd.	—	276 Bulwark Transport Ltd.	—	Electrothermal Engineering Ltd.	—
Aiton & Co. Ltd.	—	66 Burnett & Rolfe Ltd.	—	Elga Products Ltd.	—
147 Albany Engineering Co. Ltd., The	—	194 Bush, W. J., & Co. Ltd.	—	Book Mark Elliott, H. J., Ltd.	—
155 Alginate Industries Ltd.	—	124 Butterfield, W. P., Ltd.	—	Elliott Brothers (London) Ltd.	—
123 Allen, Edgar, & Co. Ltd.	—	Butterworths Scientific Publications	—	145 Elmatic	—
130 Allen, Frederick & Sons (Poplar) Ltd.	—	Callow Rock Lime Co. Ltd., The	—	Endecotts (Filters) Ltd.	—
160 Allis-Chalmers Great Britain Ltd.	—	245 & 249 Calmic Engineering Co. Ltd.	—	Evans Electroelenium Ltd.	—
Alumina Co. Ltd., The	—	Carless, Capel, & Leonard Ltd.	—	Evered & Co. Ltd.	—
Ancorite Ltd.	—	175 Causeway Reinforcement Ltd.	—	168 Farnell Carbons Ltd.	—
Andrew Air Conditioning Ltd.	—	Chappell, Fred, Ltd.	—	156 Feltham, Walter H., & Co. Ltd.	—
136 Anglo-Dal Ltd.	—	Chemical Age Enquiries	143 & 144	152 Ferris, J. & E., Ltd.	—
Anthony, Mark, & Sons Ltd.	—	Chemical & Insulating Co. Ltd., The	—	279 Ferrostatics Ltd.	—
211 Armour Hess Chemicals Ltd.	—	Chemicals & Feeds Ltd.	—	Fielden Electronics Ltd.	—
Ashley Associates Ltd.	—	Chemieausstattungen Deutscher Innen-Und. Aubenhandel	—	171 Flight Refuelling Ltd.	—
Ashmore, Benson, Pease & Co. Ltd.	—	Chemolimpex	—	Fireproof Tanks Ltd.	—
Associated Electrical Industries Ltd.	—	Christy & Norris Ltd.	—	185 Foxboro-Yoxall Ltd.	—
Motor & Control Gear Division	—	Ciba (A.R.L.) Ltd.	—	Fraser, W. J., & Co. Ltd.	—
Associated Electrical Industries Ltd.	—	158 Ciba Clayton Ltd.	—	Freeman, William, & Co. Ltd.	—
Turbine-Generator Division	—	Ciech Ltd.	—	Fullers' Earth Union Ltd., The	—
153 Associated Lead Mfrs. Ltd.	—	164 Citenco Limited	—	122 G.Q. Parachute Co. Ltd.	—
G/Card Audco Limited	—	Classified Advertisements	—	168 Gallenkamp, A., & Co. Ltd.	—
B.S.A. Small Tools Ltd.	—	169 Clayton, Son & Co. Ltd.	—	Gascogne, Geo. H., & Co. Ltd.	—
179 Baker Perkins Ltd.	—	138 Clydesdale Chemical Co. Ltd.	—	Geigy Co., Ltd., The	—
173 Balfour, Henry, & Co. Ltd.	—	Cohen, George, Sons & Co. Ltd.	—	183 General Precision Systems Ltd.	—
182 Barclay Kellett & Co. Ltd.	—	141 Cole, R. H., & Co. Ltd.	—	Glass Manufacturers' Federation	—
138 Barytes (Shielding Products) Ltd.	—	Colt Ventilation Ltd.	—	Giusti, T. & Sons Ltd.	—
Begg, Cousland & Co. Ltd.	—	131 Comet Pump & Eng. Co. Ltd., The	—	Glebe Mines Ltd.	—
128 Belliss & Morcom Ltd.	—	269 Commercial Plastics Ltd.	—	Goodyear Pumps Ltd.	—
165 Bennett, Sons & Shears Ltd.	—	Consolidated Zinc Corporation Ltd.	—	167 Gravier Mfg. Co. Ltd.	—
G/Card Berk, F. W., & Co. Ltd.	—	Constable & Co. Ltd.	—	172 Gress, R. W., & Co. Ltd.	—
138 Black, B., & Sons Ltd.	—	G/Card Constantin Engineers Ltd.	—	Halex (Bex Industrial)	—
2 Blackman, Keith, Ltd.	—	Constructors John Brown, Ltd. Back Cover	—	144 Haller & Phillips Ltd.	—
Blaw, Knox Chemical Engineering Co. Ltd.	—	Controlled Convection Drying Co.	—	Hamilton Company Inc.	—
190 Blondell & Crompton Ltd.	—	Cooke, Troughton & Simms Ltd.	—	156 Harris (Lostock Gralam) Ltd.	138
Boby, William, & Co. Ltd.	—	Coulter Electronics Ltd.	—	Harvey, G. A., & Co. (London) Ltd.	—
Borax & Chemicals Ltd.	122	Cromil & Percy Ltd.	—	6 Haworth, F. (A.R.C.) Ltd.	—
205 Borax Consolidated Ltd.	—	Crossfield, Joseph, & Sons Ltd.	—	Headfield Industries Ltd.	—
4 Boulton, William, Ltd.	—	Crossley, Henry (Packings) Ltd.	—	Hearson, Charles, & Co. Ltd.	—
Braby, Frederick, & Co. Ltd.	—	180 Crow Carrying Co. Ltd., The	—	Helmets Ltd.	—
Brackett, F. W., & Co. Ltd.	—	133 Cruickshank, R., Ltd.	—	161 Hercules Powder Co. Ltd.	—
265 British Acheson Electrodes Ltd.	—	159 Curran, Edward, Engineering Ltd.	—	Hindle, Joshua, & Sons Ltd.	—
132 British Carbo Norit Union Ltd.	121	219 Cyanamid of Great Britain Ltd.	—	164 Holden, Chris., Ltd.	—
British Ceca Co. Ltd., The	118	213 Cyclo Chemicals Ltd.	—	Humphreys & Glasgow Ltd.	—
193 British Celanese Ltd.	—	126 Cyclops Engineering Co. Ltd., The	—	151 Huntingdon, Heberlein & Co. Ltd.	—
British Drug Houses Ltd., The	—	235 Dalglish, John, & Sons Ltd.	—	I.C.I. (Billingham)	—
154 British Ermeto Corporation Ltd.	—	152 Danks of Netherthorn Ltd.	—	I.C.I. Catalysts	—
Spine British Geon Ltd.	—	136 Davey & Moore Ltd.	—	I.C.I. General Chemicals Division	115
271 British LaBour Pump Co. Ltd.	—	144 Davey, Paxman & Co. Ltd.	—	I.C.I. Ltd. Heavy Organic Chemicals	—
British Lead Mills Ltd.	—	Davy & United Instruments Ltd.	—	I.C.I. Metals Titanium D.	—
G/Card British Oxygen Company Ltd. (Heavy Industrial Dept)	—	140 Dawson, McDonald & Dawson Ltd.	—	I.C.I. Nobel Chemicals	119
146 British Rototherm Co. Ltd., The	—	Deutsche Steinzeugwarenfabrik	—	I.C.I. Plastics—Darvic	—
122 British Steam Specialties Ltd., The	—	143 Distillers Co. Ltd., The	—	I.C.I. Plastics—Fluon	—
126 British Tar Products Ltd.	Back Cover	139 Distillers Co. Ltd., The (Chemical Div.)	—	I.C.I. Ltd. (Plastics Division), Corvic	—
British Thomson-Houston Co. Ltd., The	—	Distillers Co. Ltd., The (Industrial Group)	—	I.C.I. (Fluorube) Ltd.	—
G/Card British Titan Products Co. Ltd.	—	135 Dorr-Oliver Co. Ltd.	—	I.M.P.A. Ltd.	—
British Visqueen Ltd.	Cover ii	131 Doulton Industrial Porcelains Ltd.	—	Interscience Publishers Ltd.	—
321 Broadbent, Thomas, & Sons Ltd.	—	Dow Chemical International S.A.	—	Isopad Ltd.	—

(Continued on page 116)

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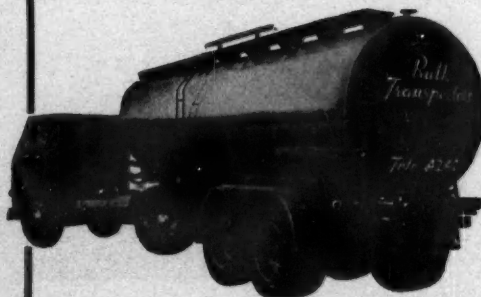
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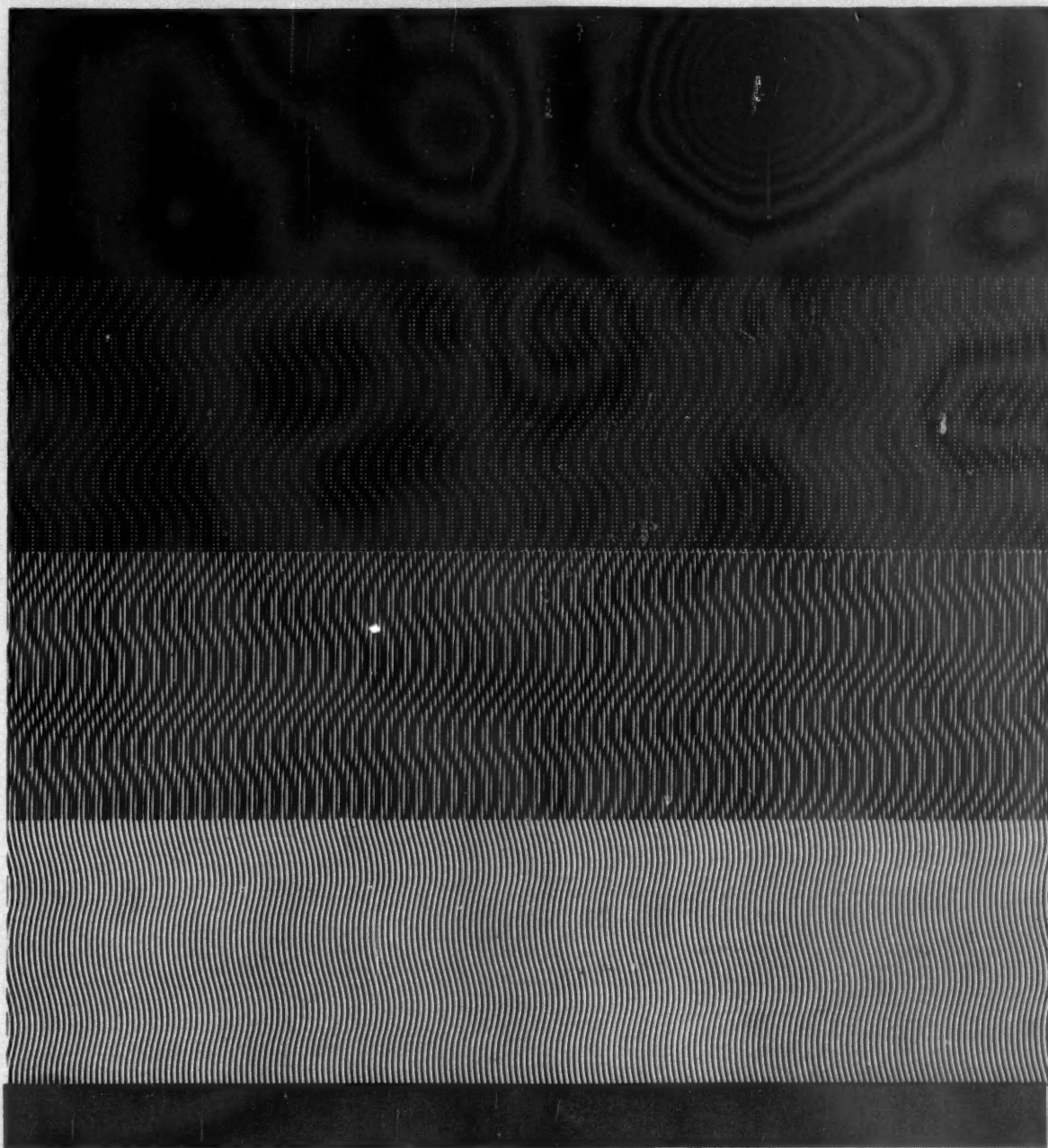
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# INDEX TO ADVERTISERS

*The first figures refer to advertisements in Chemical Age Directory & Who's Who, the second to the current issue*

Page		Page		Page		Page	
174	Jackson, J. G., & Crockett Ltd.	120	Nailex Engineering Co. Ltd.	—	Sharples Centrifuges Ltd.	—	
172	Jamesies Ltd.	—	National Coal Board	—	3 Sheepbridge Equipment Ltd.	—	
—	Jenkins, Robert, & Co. Ltd.	—	National Industrial Fuel Efficiency Service	—	Shell Chemical Co. Ltd.	113	
—	Johnson, Matthew & Co. Ltd.	—	118 Neckar Water Softener Co. Ltd.	—	Shell-Mex & B.P. Ltd.	—	
128	Johnsons of Herdon Ltd.	—	149 Negretti & Zambra Ltd.	—	Shell Industrial Oils	—	
—	Jones & Stevens Ltd.	—	Newnes, George, Ltd.	—	Shirley, Aldred, & Co. Ltd.	—	
—	—	—	Back Cover Newton Chambers & Co. Ltd.	—	Siebs, Gorman & Co. Ltd.	—	
186	K.D.G. Instruments Ltd.	—	Nordac Ltd.	—	197 Silvercrown Limited	—	
—	K & K Laboratories Ltd.	—	Normalair Ltd.	—	40 Simon, Richard, & Sons Ltd.	139	
170	K.W. Chemicals Ltd.	—	Northgate Traders (City) Ltd.	—	Sipon Products Ltd.	—	
—	Kaylene (Chemicals) Ltd.	—	Nuovo Pignone	—	Sojuzhimexport	—	
198	Kellie, Robert, & Sons Ltd.	—	162 Odoni, Alfred A., & Co. Ltd.	—	267 Southern Analytical Ltd.	—	
—	Kellogg International Corporation	—	190 Optical-Mechanical (Instruments) Ltd.	—	Spence, Peter, & Sons Ltd.	137	
180	Kenton Fluorescent Mfg. Co.	—	Orthos (Engineering) Ltd.	—	199 Spencer Chapman & Messel Ltd.	—	
166	Kernick & Son Ltd.	—	Oxford Paper Sack Co. Ltd.	—	Spencers Joinery Ltd.	—	
319	Kestner Evaporator & Engineering Co. Ltd.	—	—	—	223 Standard Chemical Co.	—	
—	Kestner Evaporator & Engineering Co. Ltd. (Keebush)	—	G/Card P.G. Engineering Ltd.	—	320 Stanton Instruments Ltd.	—	
—	Klinger, Richard, Ltd.	—	Palfrey, William, Ltd.	—	Staveley Iron & Chemical Co. Ltd.	—	
—	—	—	Peebles, Bruce & Co. Ltd.	—	182 Steel Drums Ltd.	—	
—	Laboratory Apparatus & Glass Blowing Co.	—	Pearlyn Quarries Ltd.	—	196 Steel, J. M., & Co. Ltd.	—	
—	Laboratory & Electrical Engineering Co.	—	215 Permutit Co. Ltd., The	—	196 Sturge, John & E., Ltd.	—	
176	Laboratory Glassblowers Co.	—	G/Card Petrocarbon Developments Ltd., The	—	Super Oil Seals & Gaskets Ltd.	—	
—	Langley Alloys Ltd.	—	188 Petroderivatives Ltd.	—	Surface Protection Ltd.	—	
124	Lankro Chemicals Ltd.	—	Pfizer Ltd. (Chemical Division)	—	192 Synthite Ltd.	—	
G/Card	Laporte Chemicals Ltd.	—	Pickfords Limited	—	191 Taylor Rustless Fittings Co. Ltd.	—	
—	Laporte Industries Ltd.	—	Pickstone Limited	—	194 Thermal Syndicate Ltd., The	—	
—	Lechler, Paul Firma	—	Plastic Constructors Ltd.	—	Tidy, S. M. (Haulage) Ltd.	—	
134	Leek Chemicals Ltd.	—	140 Plastic Filters Ltd.	—	156 Titanium Metal & Alloys Ltd.	—	
176	Leigh & Sons Metal Works Ltd.	—	184 Platon, G. A., Ltd.	—	Todd Bros. (St. Helena & Widnes) Ltd.	—	
—	Lennig, Charles & Co. (Great Britain) Ltd.	—	Podmores (Engineers) Ltd.	—	168 Towers, J. W., & Co. Ltd.	—	
—	Lennox Foundry Co. Ltd.	—	257 Polypenco Ltd.	—	261 Tylors of London Ltd.	—	
—	Light, L., & Co. Ltd.	—	251 Polyglas Ltd.	—	—	—	
181	Lind, Peter, & Co. Ltd.	—	195 Pool, J. & F., Ltd.	—	Uhde, Friedrich, GmbH	—	
—	Lloyd & Ross Ltd.	—	Pott, Cassels & Williamson Ltd.	—	180 Unicone Co. Ltd., The	—	
177	Lock, A. M., & Co. Ltd.	—	Potter, F. W., & Son Ltd.	—	200 Unifloc Ltd.	—	
—	Longman Green & Co. Ltd.	—	255 Powell Duffryn Carbon Products Ltd.	—	Unilever Ltd.	—	
162	Longworth Scientific Instruments Co.	—	G/Card Power-Gas Corporation Ltd.	—	Union Carbide Ltd.	—	
188	Lord, John L., & Son	—	146 Price Stutfield & Co. Ltd.	—	United Coke & Chemicals Co. Ltd.	—	
—	Loughborough Glass Co. Ltd.	—	Prodorite Ltd.	—	170 United Filter & Engineering Co. Ltd., The	—	
—	Low & Bonar Ltd.	—	Price's (Bromborough) Ltd.	—	196 United Wire Works Ltd., The	—	
—	Lurgi Verwaltng GmbH	—	Pye, W. G., & Co. Ltd.	—	G/Card Universal-Matthey Products Ltd.	—	
—	Luswa (U.K.) Ltd.	—	Pyrene Co. Ltd.	—	Vokrepe Ltd.	—	
—	—	—	Pyrene-Panorama Ltd.	—	—	—	
162	McCarthy, T. W., & Sons	—	Q.V.F. Ltd.	—	188 W.E.K. Traders Ltd.	—	
188	McMurray, F. J.	—	Quickfit & Quartz Ltd.	—	189 Walker, P. M., & Co. (Halifax) Ltd.	—	
187	Maine, B. Newton, Ltd.	—	—	—	8 Waller, George, & Son Ltd.	—	
134	Manesty Machines Ltd.	—	154 Reade, M. G.	—	Ward, Thomas W., Ltd.	—	
129	Marchon Products Ltd.	—	241 Reads Ltd.	—	Warren-Morrison Ltd.	120	
—	May & Baker Ltd.	—	Reavell & Co. Ltd.	—	148 Watson, Laidlow, & Co. Ltd.	—	
—	Mechans Ltd.	—	Recontainers Limited	—	Watson-Marlow Air Pump Co.	—	
—	Front Cover Metal Containers Ltd.	Front Cover	Rheem Lysaght Ltd.	—	125 Wellington Tube Works Ltd.	—	
G/Card	Metacalf & Co.	—	Rhodes, B. & Son Ltd.	—	242 Whitaker, B., & Sons Ltd.	—	
146	Metering Pumps Ltd.	—	Richardson Scale Co. Ltd.	—	Widnes Foundry & Engineering Co. Ltd.	—	
—	Metrimex	—	Richmond Welding Co. Ltd.	—	253 Wilcox, W. H., & Co. Ltd.	—	
—	Metropolitan-Vickers Electrical Co. Ltd.	—	243 Rosin Engineering Co. Ltd.	—	137 Wilkinson, James, & Son Ltd.	—	
130	Middleton & Co. Ltd.	—	Ross Ensign Ltd.	—	142 Williams & James (Engineers) Ltd.	—	
—	Mirless Watson Co. Ltd., The	—	260 Rotameter Manufacturing Co. Ltd.	—	Witco Chemical Co. Ltd.	—	
178	Mirvale Chemical Co. Ltd., The	—	192 S.P.E. Company Ltd.	—	142 Wood, Harold, & Sons Ltd.	116	
—	Mitchell, L. A., Ltd.	—	Sandiscre Screw Co. Ltd., The	—	184 Worcester Royal Porcelain Co. Ltd., The	—	
120	Mond Nickel Co. Ltd., The	—	Saunders Valve Co. Ltd.	—	—	—	
—	Monkton Motors Ltd.	—	Scientific Design Co. Inc.	—	Yorkshire Engineering & Welding Co. (Bradford) Ltd.	—	
—	Monsanto Chemicals Ltd.	—	Scientific Glass Blowing Co.	—	150 Yorkshire Tar Distillers Ltd.	Cover iii	
—	Morgan Refractories Ltd.	—	Scott, Bader & Co. Ltd.	—	Young, A. S., & Co.	—	
178	Moritz Chemical Engineering Co. Ltd.	—	174 Scottish Tar Distillers Ltd.	—	150 Zeal, G. H., Ltd.	—	

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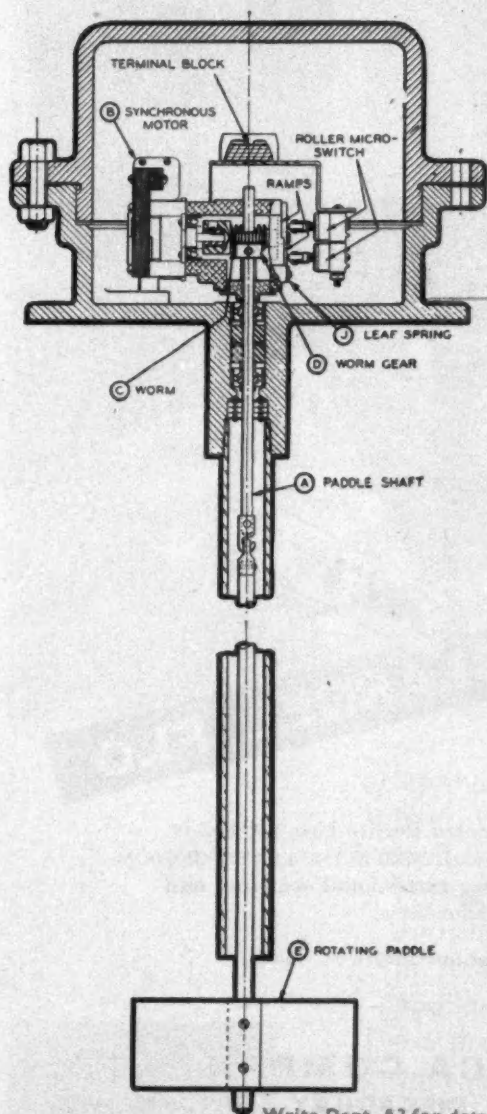
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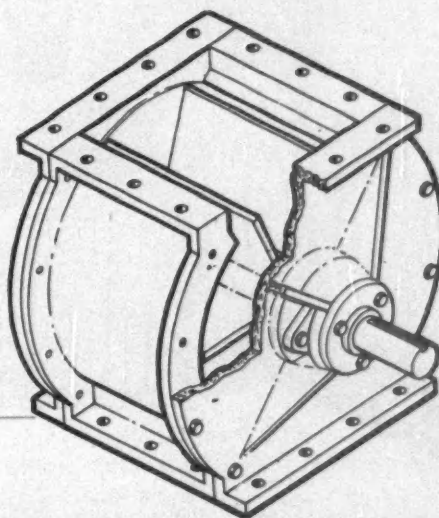
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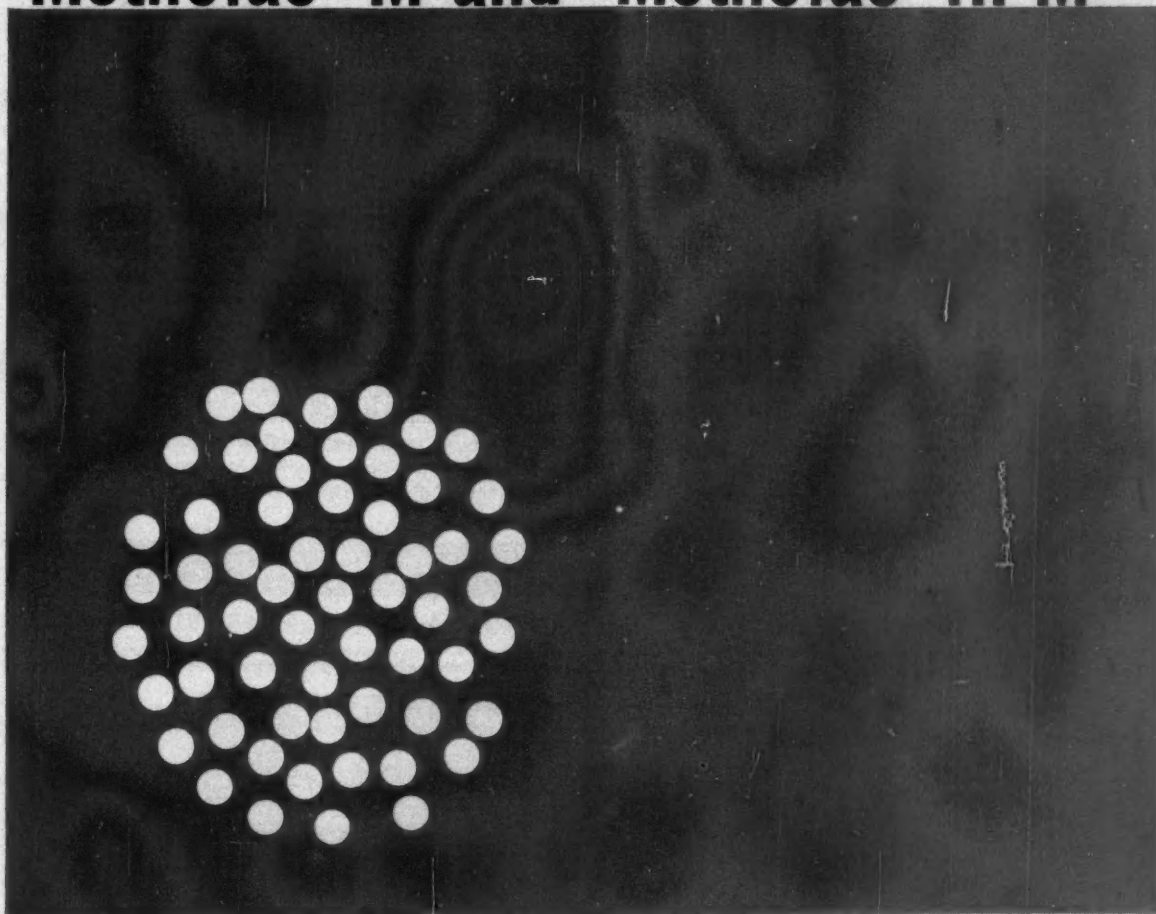
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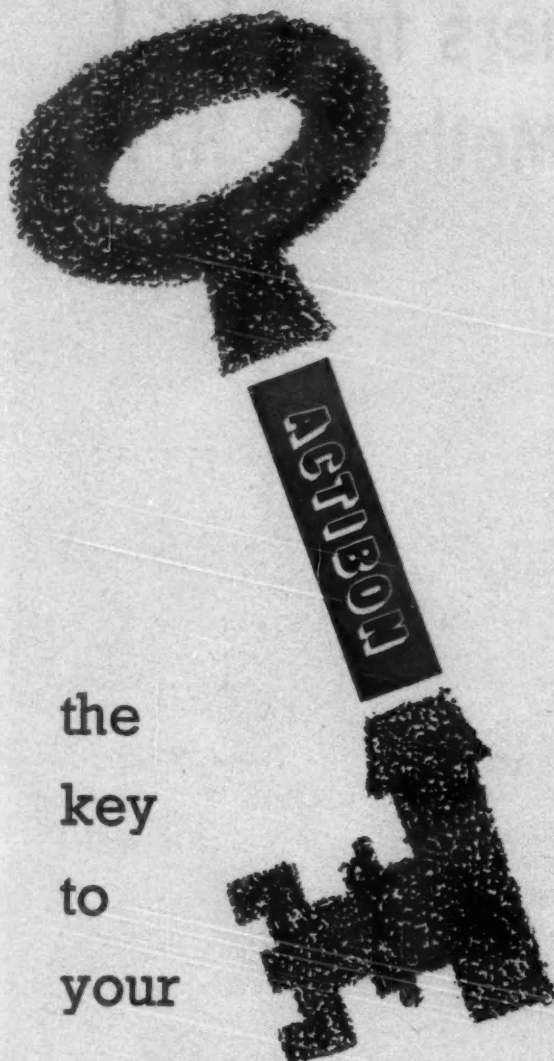


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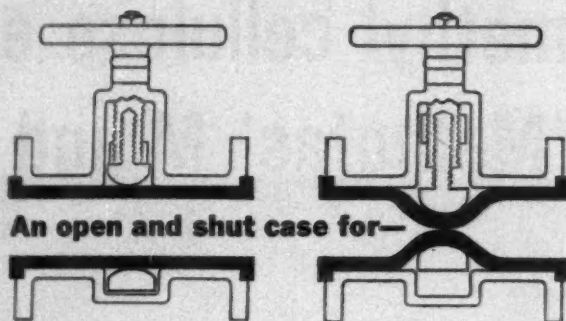
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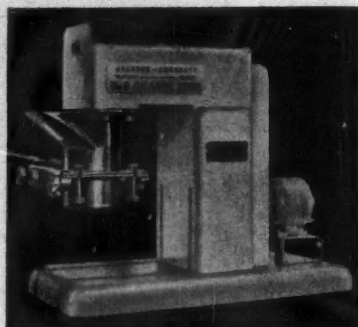
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Telephone: FLEET Street 3212 (26 lines)  
 Telegrams: Benformula - London E.C.4

Editor Manager  
 M. C. HYDE R. C. BENNETT

Director N. B. LIVINGSTONE WALLACE

**Midland Office**

Daimler House, Paradise Street,  
 Birmingham. [Midland 0784-5]

**Leeds Office**

Permanent House, The Headrow,  
 Leeds 1. [Leeds 22601]

**Scottish Office**

116 Hope Street, Glasgow C2.  
 [Central 3954-5]

**IN THIS ISSUE**

Warner's Merger Offer to B.D.H.	124
U.K. Sulphuric Acid for Continent	124
Project News: Courtaulds Fibre Know-how for Poland; Hum- glas Offer E. Germany Fibre Processes	125
Berkol from Irish Peat	126
Survey of U.K. Industry	127
Distillates	128
I.C.I. Executive Reorganisation	129
Obituary: Lord McGowan	131
U.K.A.E.A. Report	132
S.C.I. Annual Meeting	132
Overseas News	133
Russian Visit to I.C.I. Plastics Division	135
Toxic Chemicals Report	135
Commercial News	136
Market Reports	136
People in the News	138
New Patents	140
Trade Notes	142

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# Chemical Age

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## PROGRESS IN MEXICO

**O**F the Latin American countries it would be difficult to find one to parallel the astonishing economic development that has taken place in Mexico since 1946. Already a large sulphur industry has been built up, now the accent is on petrochemicals.

Current plans are principally aimed at the production of fertilisers and detergent raw materials, although plastics also figure prominently. Last year, Pemex (Petroleos Mexicanos), the State-owned oil monopoly announced that by 1962 Mexico would possess 28 petrochemical plants. Of the total, four will be for ammonia and derivatives, six for aromatics, three for synthetic rubber, two for plastics, seven for tetraethyl lead and others for fibres, dyestuffs and sulphuric acid.

New Mexican plants include: aromatics (benzene, toluene and xylenes), 136,300 tons, for completion at Minatitlan in 1961; styrene monomer, 10,000 tons at Madero by 1962; synthetic rubber, 20,000 tons at Madero by 1962; polythene, 20,000 tons at Azcapotzalco, plus an unspecified quantity of polypropylene at Madero; acetaldehyde, 23,000 tons at Salamanca by 1962; vinyl chloride, 10,000 tons; dodecylbenzene, 14,000 tons at Madero by 1961; carbon black, 24,000 tons at Salamanca by 1961; ammonia for industrial usage, 120,150 tons at Salamanca and Minatitlan by 1961 and 79,200 tons for agricultural usage at Chihuahua.

In addition to the plans of Pemex, much of the development in chemicals will be by private companies, and by foreign investors in conjunction either with private companies or with the State organisation. In the case of foreign investment, U.S. chemical companies are showing the most interest; in joint projects, the overseas partner usually holds less than 50% of the shareholding. An instance of this is the company recently set up by Pemex (51%) and E.I. du Pont de Nemours (49%) to construct a tetraethyl lead plant at an investment of 1 million pesos.

This year, it is estimated that private investment in the Mexican chemical industry will exceed £5.7 million. The Mexican company, Fertilizantes del Bajio, with U.S. know-how, will build a urea plant at Salamanca, where it is hoped that daily output will reach 170 tons and that the annual output value will exceed the initial investment of £1.4 million. Another company, Fertilizantes del Istmo, a joint Pemex (one-fifth) and private enterprise venture, will build a £2 million plant at Coatzacoalcos to produce ammonia and nitrogen compounds, calcium superphosphate and sulphuric and phosphoric acids.

So far British interest in the development of the Mexican chemical industry has been mainly in the plant construction field, and in this respect, Pemex have credits worth £7 million with British Oil Equipment Credits Ltd.

Mexico's petrochemical industry is significant for three reasons. It marks an important stage in that country's industrialisation; its products will save considerable foreign exchange (TEL production will save \$6 million a year; local urea is expected to sell at £25/ton compared with an import bill of £40/ton) and since rather more than half the population of Mexico still depend on agriculture for a living, the development of a fertiliser industry is of major significance.



## B.D.H.-Mead Johnson Decision Hangs Fire While Warner Merger Approach is Discussed

**L**ATEST development in the affairs of British Drug Houses Ltd., still in a state of flux as we go to press, is a proposal by William R. Warner Ltd., British subsidiary of the giant Warner-Lambert pharmaceutical group of the U.S., for a merger with B.D.H. The merger would possibly involve the formation of a holding company to handle the capital of the two companies.

William R. Warner, who operate a £2 million pharmaceutical plant at Eastleigh, Hants, last year increased their gross profits from pharmaceuticals and toilet goods to £652,000 from £544,000 in 1959-60. Comparable earnings of B.D.H. declined to £579,000 from £648,000.

This new approach came at a time when the B.D.H. board were facing opposition among shareholders to the proposed new link with Mead Johnson and Co., of the U.S., which would give Mead Johnson a 35% holding in return for £5 million of fresh capital, and on the eve of the extraordinary meeting called for 17 July to discuss this proposal. The meeting has now been officially postponed until the end of this month, pending consideration of the Warner offer, clarification of which is awaited as we go to press.

Notwithstanding the official postponement of the meeting on 17 July, some 70 shareholders attended and Mr. Geoffrey Eley, the chairman, answered questions about the Mead Johnson and the Warner proposals. He revealed that the board had received proxy votes showing a four-to-one majority in favour of the Mead Johnson scheme. Pressed to give details of the B.D.H. board's development proposals, Mr. Eley declined on the grounds that would give useful information to competitors.

Invited by Mr. Eley to name the company which he had said would make a bid for B.D.H., Mr. John Horn, chartered accountant, who has been leading the opposition to the Mead Johnson deal,

said he was unable to disclose anything further until the Mead Johnson deal had been definitely approved or rejected.

Rumours that at least one U.K. concern would be prepared to make an offer have grown stronger during the past week, although the company or companies concerned have not been identified.

### 'Keep B.D.H. Research for Britain' Plea

THE research department of British Drug Houses Ltd. is an important national asset and its position should be safeguarded in the national interest, Dr. Arthur I. Vogel, D.Sc.(Lond.), F.R.I.C. (a B.D.H. shareholder), said in a letter to the *Financial Times* on Tuesday. He pointed out that B.D.H. held an unrivalled position in the field of steroid chemistry, through its research coupled with the know-how and the patent safeguard, and that the only other British firm concerned with research on steroids was Glaxo. One important result of the B.D.H. research was the oral contraceptive and other important discoveries would doubtless follow in the near future.

Dr. Vogel said it seemed difficult to believe that British capital was not available to permit B.D.H. to develop unhampered by purely financial considerations. It was to be noted, he pointed out, that neither Mead Johnson nor Warner-Lambert were concerned with research in the steroid field; they, at least, were obviously aware of the great value of the B.D.H. research department and seemed most anxious to share in the dazzling financial rewards which were bound to come as a result of research and development by British chemists.

In professional life, Dr. Vogel is head of the chemistry department of Woolwich Polytechnic. He is the author of a number of books on organic chemistry and on organic and inorganic analysis.

## U.K. Sulphuric Acid for Continent

A NEW precedent was created at Whitehaven earlier this month, when a cargo of nearly 1,000 tons of sulphuric acid was shipped to the Continent, the first under a multi-thousand ton contract gained by Solway Chemicals Ltd.—a member of the Albright & Wilson Group.

Mr. Frank Schon, chairman of Solway Chemicals and its sister company, Macchon Products Ltd., pointed out that the situation was an agreeable change from



Sulphuric acid for the Continent being loaded at Whitehaven

what was happening 10 years ago, when, because of a world shortage of sulphur, British industry was desperately importing any cargoes of acid on offer. Now a substantial tonnage of acid, made not from imported sulphur, but from indigenous anhydrite was being exported competitively.

## S.C.I. Forms Water and Effluents Group

INDUSTRIAL WATER AND EFFLUENTS is the title of the latest subject group to be formed by the Society of Chemical Industry. Chairman is Dr. B. A. Southgate, director of the D.S.I.R. Water Pollution Research Laboratory. Group hon. secretary is Mr. J. L. Hewson, I.C.I., London.

The group will cover all aspects of the science and technology of the treatment, conservation and economic use of water as well as the treatment and disposal of effluents. First of a series of meetings for the 1961-62 session will be held on 1 November at the Royal Institution, 21 Albemarle Street, London W.1.

## Gas Industry Returns Show Financial Surplus

Record sales of gas, showing an increase of 2½% over the previous year, were recorded by the U.K. gas industry during the year ended 31 March. Sir Henry Jones, chairman of the Gas Council, said in London last week that useful though modest financial surplus was earned by the industry as a whole.

## Albright Chairman at Buckingham Palace



Sir Sydney Barratt, chairman of Albright and Wilson, who was created a Knight Bachelor in the Queen's Birthday Honours (C.A., 17 June, p. 984), is seen here outside Buckingham Palace with his family after the investiture

## Project News

## Courtaulds Win £2 M. Contract for Polish Acrylic Fibre Plant

**K**NOW-HOW, plant and machinery for acrylic fibre production will be supplied to Poland by **Courtaulds Ltd.** through **Procinus Ltd.**, a 100% Courtaulds subsidiary set up for this purpose. Value of the contract, which comes from **Polimex**, the Polish Export and Import Company for Machines Ltd., Warsaw, is about £2 million.

The factory will be at Lodz, to which deliveries of plant and machinery will be made in 1963. Some of the specialised equipment will be built by Courtaulds' engineering division, the rest being sub-contracted.

It is understood that the contract was won against severe competition from the U.S. and from Western European bidders. This is Courtaulds' fourth major contract for synthetic fibre plant for Eastern Europe during the past four years, previous contracts including a £4 million acetate yarn plant for the U.S.S.R. (July 1958), £15 million worth of plant for viscose tyre cord, acrylic fibre and acetate yarn, also for the U.S.S.R. (April 1959), and a £2 million acrylic fibre plant contract for Yugoslavia (June 1960).

## Humglas to Offer E. German Synthetic Fibre Process

**P**LANT for the production and spinning of a wide range of synthetic fibres developed in East Germany will be offered by **Humphreys and Glasgow Ltd.**, London, as the first concrete results of the agreement reached with the East German Government at the end of last year (C.A., 24 December, p. 1047). As stated at that time, the agreement covers all the main chemical processes used in East Germany, although details have not hitherto been forthcoming. The new announcement from Humphreys and Glasgow makes it clear that know-how

and licences will be available to Humglas for processes for the production and spinning of polyacrylonitrile, polyamide, polyester and viscose fibres.

The chemical industry in East Germany was in a particularly depressed state in the immediate post-war period, due to war damage and to the loss of East Germany's natural source of supply in West Germany. As part of East Germany's plans to develop an independent economy, and in view of the shortage of natural wool in that country, great efforts have been made in the field of synthetic fibres in the last two five-year plans. Present plans call for fantastic increases in synthetic fibre production so that the 1965 production will be six times that of 1958. As an example there are plans for a new polyester plant at Guben to produce 10,000 tons/year by 1965.

It is believed that plastics as well as synthetic fibres will feature prominently in the E. German processes to be made available by Humglas.

## War Office Orders Dracone Container

● THE War Office is ordering a 100,000 gallon capacity Dracone towable container (200 ft. long, 10 ft. dia.) from **Dracone Developments Ltd.**, and is placing a contract for the development and supply of special ancillary equipment for transporting, handling, filling and emptying it.

Dracones, nicknamed 'sea serpents' are designed for the transport by water of liquids lighter than water and were the invention of Dr. B. J. A. Bard, now chairman of Dracone Developments (see 'People', p. 138). Recently a new company, **Dracone Operations Ltd.**, was formed to licence, manufacture, sell and hire Dracones throughout the world.

Dracone oil-carrying barges have been supplied to all three Services, and are at present in commercial use or under

trial in many parts of the world, including Germany, Australia, Canada, the West Indies, Indonesia, Japan and Malaya. A 550 ton capacity water-carrying Dracone (220 ft. long, 11 ft. dia.) is operating regularly in Greece and a further one is on order. Future immediate prospects include trials and demonstrations in Scandinavia, Brazil and Argentina.

## Cyanamid Plans Second Major Antibiotics Plant in Europe

● PLANS to build a second major antibiotics plant in Europe have now been officially announced by **Cyanamid International** from London and New York. The new plant, to be built at the Catania, Sicily, headquarters of Cyanamid Italia, will cost some \$1 million.

Although Cyanamid at present have a major production unit at Gosport, Hants, the new facility by Cyanamid Italia will be the company's first antibiotic fermentation unit within the European Common Market. The Catania plant will be on the U.K. model and, like its British equivalent, will produce the main broad spectrum antibiotics, **Ledermycin** (demethyl chlortetracycline), **Achromycin** (tetracycline), and **Aureomycin** (chlortetracycline) as well as various other therapeutic agents. The plant will also supply Aureomycin animal feed supplements and veterinary products.

Cyanamid Italia was established in 1959 for the production and sale of Cyanamid's **Lederle Division** pharmaceuticals, and agricultural chemicals through the purchase of a majority interest in **Azienda Laboratori Farmaceutici, S.p.A., Alfar**, formerly licensee for Italy.

In **CHEMICAL AGE**, 17 June, page 985, it was mentioned that **Compagnia Tecnica Industrie Petroli** were acting in association with **Italia-Catania** in the erection of the plant, and that the U.K. firm, **Lightnin Mixers Ltd.**, Poynton, Cheshire, had been awarded orders for fluid mixing equipment for this factory.

## New Billingham Project for British Titan?

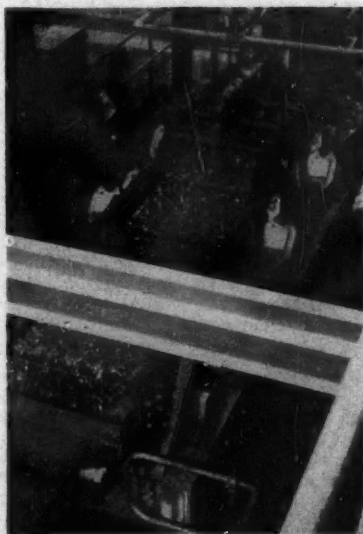
● FURTHER signs that **British Titan Products Co. Ltd.** are planning extensions to their plant at Billingham-on-Tees are seen in a recent request from the company to the Tees Valley and Cleveland Water Board for an increase in the company's water supply to 2 million gall./day. No further information about the project is forthcoming from the company at present.

In his annual statement recently the chairman of British Titan, Mr. G. H. Beeby, hinted at an extension of the company's £14 million development programme for the next three or four years.

## B.T.R. Conveyor Belts for U.S.S.R.

● A NEW order from the U.S.S.R. for more than five miles of belting, worth over £250,000, has been received by **B.T.R. Industries Ltd.**, London, following negotiations during, and subsequent to, the British Trade Fair in Moscow.

## Ore Preparation



New ore preparation screen at the heavy media plant where **Glebe Mines Ltd.** handle the fluorspar and other minerals they mine at Eyam, Derbyshire. **Glebe Mines** are one of the **Laporte Group**



Conveyor belting of similar construction was supplied to the U.S.S.R. in 1958. Deliveries against the new order will commence in September.

### B.I.C.C. Cables for Bangkok Compost-from-refuse Plant

MORE than 7,000 yards of mineral insulated, paper insulated, steel wire armoured and p.v.c. insulated cables were supplied by **British Insulated Cables Ltd.** for the wiring installation of the recently opened £714,000 mechanised refuse composting plant at Bangkok, Thailand, which produces some 60,000 tons of compost annually. This unit, the largest of its kind in the world, was designed and erected by the John Thompson Group in collaboration with Compost Engineers Ltd.

### Drug Factory Extensions for Upjohn

A CEREMONY was held last week at the Crawley, Sussex, factory of **Upjohn of England Ltd.**, to mark the official start of construction of extensions to the factory which will make it one of the most modern pharmaceutical factories in the U.K. Estimated cost of the project is £725,000 and the new extension will occupy some 50,000 sq. ft., making a total of 80,000 sq. ft. It is scheduled for completion in October 1962 and for full production in December 1962.

## Berkoal Produced from Irish Peat in New Plant at Drogheda

FIRST stage of a new plant to convert peat into Berkoal, used in foundries for the production of castings, is now in production at Drogheda, Eire, with an initial capacity of 6,000 tons/year. Second stage of the plant, due for commissioning shortly, will double this figure to 12,000 tons/year.

The plant is operated by **Alluvial Products (Ireland) Ltd.**, while world distribution will be handled by **F. W. Berk and Co. Ltd.**, Berk House, 8 Baker Street, London W.1. The factory was opened recently by Mr. Erskine Childers, T.D., Irish Minister for Transport and Power, who was welcomed at Drogheda by Mr. Desmond Siberry and Mr. S. G. Henderson, directors of **Alluvial Products (Ireland)**, and by Mr. B. E. Mileham, director of **F. W. Berk**.

Some time ago the British Cast Iron Research Association found that the addition to the mould mixture of a peat of a certain nature was extremely good in reducing expansion defects, and that sand mixtures containing peat moulded well and were not so liable to crumble as those containing materials such as wood flour. **Alluvial Products Ltd.**, in association with **F. W. Berk** carried out a great deal of research on different types of peat. Pilot plant for making the finely powdered peat was installed at Birkenhead at the end of 1958.

It was decided early in 1960 that it would be better to have the main pro-

### Busy Period for Stone and Webster

WORK is now in hand by **Stone and Webster Engineering Ltd.** on three ethylene projects—for **British Hydrocarbon Chemicals Ltd.**, **Cie Française de Raffinage** and for **ANIC**, of the Italian State oil group, in Sicily. Other projects in hand by **Stone and Webster's** London office are the Mersk Refinery in Denmark; modifications to the Aden crude units of **British Petroleum**, and on butadiene and hydrotreater steam plant for **British Hydrocarbon Chemicals Ltd.** A study is in hand for an increase in distillation capacity for the **Kuwait Oil Co. Ltd.** and the company is currently at the completion stage of the **Shell Chemical micro-wax plant** at Stanlow.

### Kent Instruments for Poland

SPECIAL equipment, valued at £30,000, for the measurement and control of processes in the Polish chemical industries, has been ordered from **George Kent Ltd.**, Luton, by the Polish national importing organisation, **Varimex**. Details of the equipment and the types of chemical plant in which they will be used are not revealed, but part of the order is for equipment made by **Kent Tieghi S.p.A.**, Milan.

**George Kent** have been progressively increasing their sales of instruments to Poland over the last 15 years.

### Berk Developments in P.V.C. Stabilisers

THE new Temex range of barium-zinc organic stabilisers for p.v.c., introduced by **F. W. Berk and Co. Ltd.**, are said to eliminate discoloration, and to permit the use of a wider selection of pastel shaded stocks and to assure freedom from sulphur staining. The sulphur staining of clear and highly translucent compositions can be overcome by the admixture of carefully regulated quantities of **Berk's Nalzin**, a zinc organic complex, that has been developed for this purpose.

The company's **Tribase** (tribasic lead sulphate), previously recommended for the stabilisation of rigid articles and electrical insulation, is now finding expanding use in general purpose p.v.c. compounds. Another **Berk stabiliser** that has won a new market as an activator and stabiliser in the new 'foam-back' p.v.c. foam-back textiles, is **Dythal** (dibasic lead phthalate), previously accepted for use as a stabiliser for high-temperature electrical insulation.

New p.v.c. stabilisers for specific purposes are the subject of continuing research at the **Stratford laboratories** of **Abbey Chemicals Ltd.**, who produce the stabilisers distributed by **F. W. Berk** in the U.K., Commonwealth and South African markets and who also export to Europe and adjoining territories.

### Venesta to Produce Expanded Plastics

PROCESSING and moulding machinery to produce 1,000 tons/year of expanded polystyrene—half the total U.K. output of this material in 1960—is to be installed at the Erith, Kent, factory of **Venesta Plywood Ltd.**, which has hitherto been devoted to the production of boxes and containers. Reorganisation of the factory begins on 21 July and production will begin at the end of the year. The initial operation will absorb about £350,000 for machinery and working capital. Expanded polystyrene will be produced in a number of different forms from styrene monomer beads supplied to the company.

This is **Venesta's** first entry into expanded plastics. **Venesta Plywood Ltd.** is one of the operating companies of the group of which **Venesta Ltd.** is the holding company. An associated company, **Venesta Foils Ltd.**, was acquired by **Reynolds/T.I. Aluminium** for £5 million.

### New Hydrocarbon Order

The Treasury has made a new order providing for the drawback of customs or excise duty paid in respect of hydrocarbon oil used as a solvent in the manufacture of cellulose acetate of a specified kind and of articles made wholly or mainly of such cellulose acetate. The order—**Hydrocarbon Oil Duties (Drawback) (No. 4) Order, 1961**—came into operation on 15 July and has been published as **Statutory Instruments 1961, No. 1300**.



Ireland's Transport and Power Minister switches on the machinery at Drogheda, watched by Mr. D. Siberry



# U.K. Investment in Petrochemicals Should Reach £200 M. by 1962, Latest Industry Survey Reveals

**T**OTAL investment in British petrochemicals, £140 million at the end of 1960, is expected to reach £200 million by 1962, says Dr. A. W. Pearce, general manager (refining) of Esso Petroleum Co. Ltd., writing in the 'Annual Review, 1961, of British Industry', published by *The Financial Times* on 17 July. Dr. Pearce added that over the last seven years, investment in petrochemicals in the U.K. had averaged £15 million a year.

Nearly half of the installed U.K. ethylene capacity—more than 300,000 tons/year—was converted into polythene. Production of ethyl alcohol from ethylene was to-day around 70,000 tons/year, compared with 30,000 tons/year by the traditional fermentation processes. British refineries had available almost 400,000 tons/year propylene and its chemical uses were steadily growing.

The following is an estimate of U.K. refining and chemicals capacities in 1962 compared with 1959 and 1949:

	1962	1959	1949
	'000 Tons		
Crude oil refined	45,000	39,000	6,600
Organic chemicals production ...	2,350	1,400	500
Petrochemicals production ..	1,530	710	31
Petrochemicals as per cent of crude oil processed ..	3.4	1.8	0.5
Petroleum's share of organic chemicals (%)	65.0	51.0	6.0

**Chemicals Growth Rate.** In the same publication, Sir William Garrett, director of Monsanto Chemicals Ltd. and chairman of the Association of British Chemical Manufacturers, said that post-war investment in petrochemicals amounted to £145 million by 1959. The rate of investment in new plant and equipment in the chemical and allied industry had grown from £89 million in 1950 to £159 million in 1960, the latter figure representing 15% of capital expenditure in all manufacturing industry. Total investment in the chemical industry from 1950 to 1960 totalled £1,540 million.

This massive investment had led to a high rate of output and the overall production index for chemical and allied industries is rising at twice the rate of that for manufacturing industry as a whole. Taking 1954 as 100, the index rose in 1959 to 131, compared with 114 for all industry, while in 1960 the index was 145, compared with 123 for all industry. Gross output in 1959 was valued at no less than £2,536 million, the highest of all industry.

Productivity expressed as output per man per year, in the chemical industry had

doubled since 1948, compared with a less than 60% rise for all industry. During that period the chemicals labour force had increased by only 22%.

Sir William said that U.K. production of polyolefins would this year probably reach 200,000 tonnes.

**Chemical Synthesis.** In an article entitled 'Putting chemical synthesis to commercial use', Mr. A. J. Gait, Shell Chemical Co. Ltd. gave the following estimated U.K. 1960 production figures:

	'000 Tons
Ammonia .. ..	560
Urea .. ..	70
Methanol .. ..	110
Nitric acid .. ..	400
Nitrogenous fertilisers ..	1,779
Nitrogen content ..	420
Plastics based on formaldehyde	83

Some 25,000 tons/year of phenol were still produced from benzene, either through chlorobenzene or benzene sulphonic acid. Plants using the cumene-phenol process in the U.S. and Europe had a total capacity of 220,000 tons/year, with only one U.K. plant with an approximate capacity of 13,000 tons/year.

## Petro-benzene Developments

In the U.S. production of petro-benzene had already far outstripped that from coal carbonisation and Mr. Gait thinks that similar developments cannot be long delayed.

Dealing with olefins, Mr. Gait estimates U.K. capacity for the more important materials at:

	'000 Tons
Ethylene .. ..	400
Propylene .. ..	340
Butadiene .. ..	77

About 70,000 tons of ethylene used in 1960 were converted into ethylene oxide, which in turn can be used for the production of ethylene glycol, glycol ethers and polyethylene glycols. About another 15,000 tons were combined with benzene to produce styrene, while British Hydrocarbon Chemicals will shortly have their first plant on stream to convert ethylene to ethylene dichloride. The biggest ethylene usage was for conversion to polythene and in 1960 this accounted for 130,000 tons.

Discussing polyurethanes, Mr. Gait thinks it remarkable that U.K. production should already be estimated at 12,000 tons/year and to be rising rapidly.

**Plastics.** Dr. V. E. Yarsley, Yarsley Research Laboratories Ltd., says that the British plastics industry, third in world

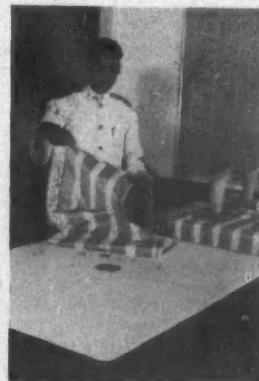
importance with 575,000 tons in 1960 compared with 150,000 tons in 1959, maintained an average 15% growth rate over the past five years, compared with 7% for the chemical industry and 3% for all U.K. industry. In 1960, Britain used 20 lb. of plastics per head of population (9.9 lb. in 1954), compared with 26.8 lb. in Western Germany in 1959 and with 24.4 lb. in the U.S. and 21.6 lb. in Sweden, both also in 1959.

Dr. Yarsley gave 1960 production of the three leading plastics materials as: P.v.c. 150,000 tons; polythene 105,000 tons; and polystyrene, 40,000 tons. It was estimated that packaging in Britain used 40,000 tons of plastics a year, of an average value of £200/ton.

**Man-made Fibres.** Mr. J. W. S. Heale, Manchester College of Science and Technology, said that U.S. producers planned to invest \$216.8 million on research and production facilities in 1960-1961. That figure could be compared with I.C.I.'s total investment of £50 million in the 18 years since they joined in the development of Terylene. The change in the price of rayon yarn between 1920 and 1940 (from 200d./lb. to 30d./lb.) was a quite unreliable guide to what might happen, but even a much smaller fall in price would lead to a vast expansion in the use of man-made fibres.

**Pharmaceuticals.** Mr. C. W. Robinson, pharmaceutical development director, Evans Medical Ltd., estimated the distribution by value of the industry's output as: National Health Service supplies, 34%; exports, 27%; others, including a growing veterinary business, 39%. With the N.H.S. accounting for more than a third of total output, and a much greater proportion of the output of companies substantially engaged in research and development, it was obvious that the extent to which such firms would continue to invest in research must inevitably be influenced by Government policy on the future use of drugs.

## PLASTICS DECORATIVE MATERIALS



Onwards march of plastics in the field of decorative materials is illustrated by this scene in the First Class restaurant aboard the P. and O.-Orient liner 'Canberra', where all the tables have been covered with I.C.I. Vynide, chosen for its hardwearing properties and attractive appearance



★ **SHAREHOLDERS** of British Drug Houses Ltd., who were warned by their chairman not to be 'dazzled' by the prospects of a take-over bid (C.A. 15 July, p. 88) have been well and truly dazzled by the events of the past week. The merger offer from William R. Warner, capping the Mead Johnson move, shows that B.D.H. are held to be a most attractive proposition.

Perhaps shareholder Dr. Vogel hits the nail on the head (see p. 124) when he refers to the great asset in the form of the B.D.H. research department. British Drug Houses have long been held in high regard for the quality of their research; with a firm understanding of steroid chemistry, B.D.H. can be expected to develop new products just as exciting as their much-discussed oral contraceptive.

It is widely felt in the City that a British company will yet come up with an eleventh-hour cash bid for B.D.H.; in this connection I should be surprised if Fisons had lost all interest in acquiring this important British pharmaceutical company.

★ **NO ONE** can say that I.C.I. are not facing up to the challenge of the 1960s. The reorganisation of top level management is much more thorough and purposeful than has been widely thought. For the first time, Mr. Eric Bingen, one of the three deputy chairmen, has disclosed what this reorganisation entails—an efficient means of reaching decisions through a series of groups, conferences and committees.

The I.C.I. system of arriving at decisions now seems to be about as thorough and efficient as anyone could devise. Although directors now have more time for forward thinking and planning, I am interested to see that much of their time and effort is taken up by ensuring that the right people are in the right jobs and that promising people are getting experience of the right kind to suit them for greater responsibility.

The capital programme committee, which gives detailed technical and commercial consideration to all projects beyond the authority of the divisions, comprises all I.C.I. executive directors, except the chairman. The C.P.C. can approve all projects up to £1 million; above that they go to the main board for approval. Since the C.P.C. largely represents the board, this might be thought a time-wasting process. But this is far from the truth. Not only does it give the executive directors a chance for

a second look at important projects, it also brings in the advice of the non-executive directors, people with wide experience of industry and politics quite outside of I.C.I. These part-time directors act as a safety-valve.

★ **I SEEM** to have mixed up my synthetic fibres. As a reader pointed out to me, I described a new Italian synthetic, Mediolanum (3 June) as both a cellulose xanthate and a protein fibre. In fact, Mediolanum is a *urea-casein xanthate* of the cellulose type so it is correctly described as a *protein fibre*.

★ **A COMPANY** that has been building up an enviable record for speed in chemical plant construction—Constructors John Brown—has done it again, and for the same client. Last year, C.J.B. engineered I.C.I.'s first polypropylene plant in record time (C.A., 10 Dec., p. 989), now they have just completed the last section of another major I.C.I. plant—this time for Dyestuffs Division.

The plant is that division's production unit for urethane foam compounds. Although both the units concerned were major ones and in both cases competition was effected within the overall planned time, there were no snags during commissioning. As with polypropylene, the Fleetwood plant was commissioned stage by stage. It is appropriate that urethane foam was used for pipe lagging—a novel method both for I.C.I. and C.J.B.

With U.K. production of polyurethanes estimated at 12,000 tons/year (see p. 127) and likely to double in the next two years, I.C.I. can be expected to raise their Fleetwood capacity before long.

★ **URETHANE** foams are also making news in Japan, where Bayer are contesting the licensing of Du Pont patents. Further entrants are likely in that field, and three Japanese spinning companies have recently disclosed plans to purchase foreign know-how. Kurashiki Spinning Co. are seeking permission to use polyurethane foam technology developed by I.C.I. and plan to import toluene diisocyanates from the British company. Their production facilities will cost an estimated 200 million yen.

Nisshin Spinning Co., who have developed their own process for the production of rigid urethane foam, plan to enter the flexible foam market, using

know-how from E. I. du Pont de Nemours for a large-scale plant at Arai.

Perhaps the most interesting news is that Daiwa Spinning Co. intend to introduce the new adhesion-technique that is covered by the patent (U.S. 2,841,205) held by Collins and Aikan Aikman of New York and London. Technifoam Corporation, New York, who hold rights to use the process with all materials except textiles in the U.S., and for all materials including textiles outside the U.S., claim a 48% cut in costs for foam laminations.

★ **I AM** delighted to hear that the new chairman of Miles Laboratories Ltd., U.K. subsidiary of Miles Laboratories Inc., is to be a British subject—Mr. W. Morgan Thompson. This appointment follows the company's recent move to Stoke Poges, Bucks, and the formation of the Miles-Ames Research and Medical Division. This division, whose new laboratories are nearing completion, will be the U.S. company's first basic research centre outside the American continent. Fundamental research in the U.K. will be carried out by a team of British scientists under Dr. C. E. Dalglish.

These moves are in accordance with the parent company policy to give autonomous control to its subsidiary companies overseas.

Miles Laboratories are perhaps best known for Alka-Seltzer. The Ames Co. Division of the U.K. company recently introduced Phenistix reagent strips as a simple 'dip and read' test to detect abnormalities in infants that might lead to mental deficiency, a condition that is reversible if discovered in time. Phenistix is also finding use in checking TB patients to determine if they have been taking certain prescribed medications. Ames are also well known for their products for the detection and control of diabetes, kidney and liver diseases and gastro-intestinal bleeding.

★ **PRISONERS** in the gaol at Suva, Fiji, have reason to be thankful for the hot springs of nearby Savusavu, for it seems that salt produced by geo-thermal heat from sea water at Savusavu has proved to be of such high quality that bread produced at the gaol has improved. Moreover, I am told, the purity of this salt is such that the amount needed for baking bread is 10-15% less than with the salt normally used, which is imported from the U.K. Fiji's salt imports cost around £30,000 a year at present, so it looks as though this much custom will be lost by the U.K. if local 'geo-thermal' sources prove capable of supplying all Fiji's requirements, at a competitive price.

*Alembic*



# 'NEW LOOK' AT THE TOP FOR I.C.I.

## Top Level Overhaul Gives Directors More Time for Planning

**M**AJOR overhaul of top level management techniques at Imperial Chemical Industries Ltd. was carried out to give the directors more time for forward thinking and planning. The new organisation provided for the executive control of I.C.I., and the system of group committees, divisional conferences, overseas conferences, capital programme committee, are described by Mr. E. A. Bingen, one of the company's three deputy-chairmen, in the current issue of *I.C.I. Magazine*.



E. A. Bingen

The reorganisation, which took nine months to devise, was the result of a special study carried out by Mr. Bingen and Dr. R. Holroyd, another deputy chairman. It was initiated at the request of Mr. S. P. Chambers, chairman, not long after he took office. Although outwardly, as Mr. Bingen acknowledges, the changes do not seem all that fundamental, appearing on the face to be merely a redistribution of the directors' responsibilities, they affect the whole effort of top management.

Aim of the study was to work out a plan under which the board would confine itself to essentials and would have proper papers presented to them to enable them to reach the right decisions; to ensure that there was proper delegation throughout I.C.I. and that more authority was given down the line; and to see that there was close co-operation between the divisions, with sufficient time for divisional managements to do some looking into the future.

It was found that the existing organisation, dating back to 1943, was still on basically right lines. There was all-round agreement that it was right to give the divisions virtually free autonomy within the framework of financial and higher policy control from the centre. It was also agreed that non-executive directors from outside the company, who were not so inbred and who had wide experience of industrial or political life outside I.C.I. should hold about one-quarter of the board seats.

Next, Mr. Bingen and Dr. Holroyd

combed through the list of offices held by executive directors and tried hard to see if cuts could be made. Mr. Bingen, who was replying to questions put to him by the editor of *I.C.I. Magazine*, said: "We have, you know, read Parkinson's law; and the risk of proliferation, with the difficulties of making decisions in big bodies, is always there. However, we found little scope, because here again all were agreed that our present system of functional directors must be preserved alongside the line management directors", those responsible for a group of divisions.

By means of regrouping, it was possible to reduce the number of executive portfolios by two, so that there are now 17 full-time executive directors, including the chairman and three deputy chairmen, plus seven non-executive directors, including Mr. Peter Allen, president of Canadian Industries Ltd. On the functional side, research and development have been combined and economic planning abolished as a specialist job since it concerns all I.C.I. directors. That saved two seats on the board, but there are now three overseas directors instead of two—an inevitable result of the increased size of the company's investments and export business. The job was too big for two, entailing too much travelling. The growing importance attached to the Common Market, high-

lighted by the formation of the European Council, pointed to the need of a director who would concentrate on I.C.I. interests in the Six and the Seven.

The divisions were regrouped to bring those with common interests closer together and reducing the number of group directors by one. The Heavy Organic Group comprises H.O.C., Fibres and Plastics Divisions; the Light Organic Group combines Dyestuffs, Paints and Pharmaceuticals; the Agricultural and Explosives Group embraces Billingham and Nobel Divisions, with Wilton and Severnside works; another combines the traditional basic chemicals produced by Alkali and General Chemical Divisions; while the Metals Division and associated metals interests have their own group.

This reorganisation is not merely a reshuffle, says Mr. Bingen. The grouping of divisions has enabled I.C.I. to introduce a new system of group committees. Each group has certain common interests and it is planned to place more emphasis on the community of those interests by arranging for the group director to hold a quarterly conference attended by his functional director colleagues and the chairman and managing directors of the divisions concerned. This conference will look at problems of long-term planning and development from a rather broader view than one division alone could do. Group directors will be in closer touch with divisional thinking at the stage before decisions are taken. Inter-group committees where necessary will take care of those problems that run across group frontiers.

These committees will have no executive powers, but represent a piece of

### The Division of Responsibilities Between I.C.I. Executive Directors

#### CHAIRMAN

S. P. Chambers

#### 3 DEPUTY CHAIRMEN

R. Holroyd, E. A. Bingen, L. H. Williams

#### 8 FUNCTIONAL DIRECTORS

<b>Commercial:</b>	W. D. Scott
<b>Finance:</b>	P. T. Menzies
<b>Overseas:</b>	
Western Hemisphere	R. C. Todhunter
& Africa	A. Caress
Western Europe	M. J. S. Clapham
Other Countries	
<b>Personnel:</b>	C. M. Wright
<b>Research &amp; Development:</b>	J. Ferguson
<b>Technical:</b>	H. Smith

#### 5 GROUP DIRECTORS

<b>Group A:</b>	J. S. Gourlay
Alkali & General Chemicals Divisions	
<b>Group B:</b>	G. K. Hampshire
Dyestuffs, Paints & Pharmaceuticals Divisions	
<b>Group C:</b>	C. Paine
Fibres, Heavy Organic Chemicals & Plastics Divisions	
<b>Group D:</b>	R. A. Banks
Billingham & Nobel Divisions, Wilton & Severnside Works	
<b>Group E:</b>	J. Taylor
Metals Division	



consultative machinery. They will not therefore impose another layer between divisions and the main board. They follow the pattern of all these recent changes—that of lifting senior executives out of immersion in day-to-day problems and placing the emphasis on making time for forward thinking and planning.

The changes include a new system of divisional conferences, presided over by Mr. L. H. Williams, deputy chairman. There are 11 divisions and except for the holiday month there is one conference a month. The division first of all prepares a paper setting out a statistical and informative picture of its affairs and winding up with a statement of the capital commitments it wishes to enter into over the next 12 months. This will often run into many £ millions. The chairman and other directors of the division are present; all I.C.I. directors have the right to attend, including non-executive directors. Mr. Bingen says that judging by present experience, all of them attend if they can.

These divisional conferences are not so much an inquest into the division's past handling of its affairs as a look into the future. If a division's capital programme is approved in principle it goes in the form of a budget to the board for approval. Such conferences last about 2½ hours and are concerned only with weighing up the big factors. "Are we putting too much effort into such and such a field? Are we keeping in the forefront or are we missing opportunities? Is I.C.I. keeping its affairs in balance? Are the political repercussions all right?" And so on.

There are 11 overseas conferences a year, presided over by Mr. Bingen. Present are the heads of overseas companies and other leading executives. Because some of the companies have outside shareholders and all of them effective boards, the directors do not approve capital spending in the same way they do at home. Generally, the

directors indicate whether they support the plans of overseas companies; they do not sanction them.

The chairman of I.C.I. does not attend the divisional or overseas conferences. These meetings discuss and consider problems, the board meetings of I.C.I., which are not attended by divisional directors or overseas heads, make the decisions. The conferences give the directors the chance of briefing themselves on the problems before they make their decisions at the board meeting. Mr. Bingen sees a definite advantage in directors having two 'thinks', particularly with a time interval between, as important decisions involving millions of pounds have to be made.

There is another advantage in the conference system; it disciplines divisions and overseas companies to present a coherent statement of their forward planning and thinking and then to argue the case and answer questions. That could not be done at a board meeting.

Asked what happened when a division's budget was approved by the board, Mr. Bingen said that again the directors had two looks at the problem. As the year goes on the division works out detailed projects within the framework of the agreed budget. If beyond the financial authority of the division, these will be submitted in the form of expenditure proposals to the capital programme committee, consisting of all the executive directors, for detailed examination. The proposals will show such things as estimated return on capital, the phasing of the expenditure, the amount needed for development, the cost and length of the break-in period, and the estimated break-even point. All these matters are examined technically and commercially by the C.P.C.

A basic merit of this procedure is that divisions have to argue their case for spending very thoroughly indeed before people who are equipped to ask pertinent and penetrating questions. Ex-

penditure proposals for up to £1 million can be approved by the C.P.C.; proposals for more, if accepted by the C.P.C., go to the board for final approval. At this stage, the non-executive directors, now more familiar with the problems as a result of the conference system, have their say and give their advice in the light of background experience not possible for people who have spent their working lives within the company.

All the papers submitted to the divisional and overseas conferences and to the group committees, and the minutes of those meetings, go to all division chairmen and managing directors; they are supposed to follow up points of interest with each other.

In addition to these meetings, a chairman's conference is held once a month which all directors can attend. This is reserved for really major matters which may crop up outside the normal run of business and which require preliminary discussion. Other matters for preliminary discussion by executive directors, but which do not require to be brought up at a chairman's conference, are dealt with monthly at a conference of executive directors, presided over by one or other of the deputy chairmen.

### Board Meetings

The main I.C.I. board now meets once a month instead of twice and the paper brought up to those meetings has been revamped. In general, papers presented now consist of the minutes of the various conferences already outlined; all expenditure proposals if they are beyond the competence of the C.P.C.; monthly sales figures; profit statements and forecasts once a quarter; and dividends.

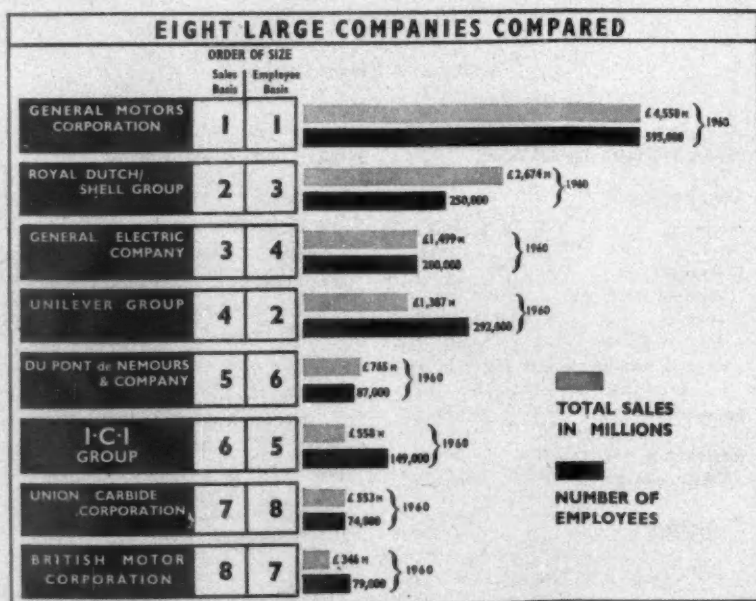
The directors also devote a lot of time to ensuring that the right people are in the right jobs and there is a proper promotional flow throughout the company. An appointments committee under the chairmanship of Dr. Holroyd comprises all executive directors, except the chairman. It considers and recommends senior appointments at home and abroad; it makes sure that promising people are getting the right kind of experience; it has individual reports on people down to what might be thought of a junior level.

The reorganisation scheme has been worked successfully for six months. Dr. Bingen is not sure that it has reduced the amount of paper circulated, but he believes that directors and other senior officials are getting a much more comprehensive view of the company and its current problems. Indeed, the way papers are now presented should enable the company to take the right forward-looking decisions in proper time.

### Oxygen Strike

Forty construction workers engaged on a £750,000 extension to the British Oxygen Company's tonnage oxygen plant at Scunthorpe, Lincs, have gone on strike in a demarcation dispute.

### EIGHT LARGE COMPANIES COMPARED



## Baron McGowan of Ardeer

# Architect of I.C.I. "Truly Great Industrial Leader"

**B**ARON McGowan of Ardeer, K.B.E., D.C.L., LL.D., honorary president of Imperial Chemical Industries Ltd. and chairman of the company from 1930 to 1950 died in St. Mary's Hospital, London, at the age of 87. Lord McGowan was the prime mover in the formation of I.C.I. in 1926. It was his foresight and determination which gave the U.K. for the first time the big industrial chemical group which was essential if we were to compete with the great chemical combines of Germany and the U.S.

Although the amalgamation which led to I.C.I. took place at the peak of Lord McGowan's industrial career, he had already at that time a wide experience of merger negotiations with several successful, although less complicated, amalgamations behind him.

Lord McGowan's career in the chemical industry began at the age of 15 as an office boy in the firm of Nobel's Explosive Co. in Glasgow of which, within 30 years, he became director and then managing director.

Frequent visits to Canada had convinced Lord McGowan that the explosives industry there was not as efficient as it might have been. In 1910, he contrived a merger of the companies concerned and brought in Du Pont, with whom Nobel Explosives had already established friendly relations, as an equal partner in the new concern which was later renamed Canadian Industries Ltd.

In the U.K., this same foresight brought about the important merger within the British explosives industry which represented the amalgamation of leading explosives and allied companies and resulted in the formation of Nobel Industries Ltd., one of the four companies which eventually became I.C.I.

### Overseas Mergers

Lord McGowan also concerned himself with mergers in Europe, Australasia and South America and notably in South Africa, where Nobel Industries found their interests clashing with those of Cape Explosives Works owned by De Beers. Lord McGowan saw the advantages of a merger and started negotiations which led to the formation of the company now known as African Explosives and Chemical Industries Ltd.

It was with this experience behind him that Lord McGowan set about effecting the biggest merger in the history of the British chemical industry. Early in 1926, an approach was made to Lord McGowan asking him if he would take over the Government-controlled British Dye-stuffs Corporation. He refused, believing that only a merger on a much larger scale could make the U.K. a really

competitive chemical power. He proposed to bring in Brunner, Mond and Co. and the United Alkali Co. which between them were the major U.K. manufacturers of soda and a considerable



Lord McGowan

range of related products. An approach was made to Brunner, Mond in July resulting in the promise of further consideration.

The speed with which this complicated merger was brought about was typical of Lord McGowan. On returning from South Africa he found that Sir Alfred Mond (later Lord Melchett) and several of his co-directors had gone on

an extended trip to the U.S. Instead of waiting for them to return, Lord McGowan pursued them across the Atlantic and a rough agreement for the amalgamation of the four companies was drawn up on the return journey in the *Aquitania*. Imperial Chemical Industries was brought into being before the end of the year. Lord McGowan was appointed president and deputy chairman and he succeeded Lord Melchett as chairman on the latter's death in 1930.

The way in which he set about the formation of I.C.I. was characteristic of Lord McGowan. He always had a clear vision of the factors relevant to a merger and the energy and determination to see and seize every opportunity. He worked hard and thoroughly himself and expected the same of others.

In an appreciation of Lord McGowan, I.C.I.'s present chairman, Mr. S. P. Chambers says: "Lord McGowan was a truly great industrial leader and a powerful personality. He had the courage to make big decisions and the power to see that they were implemented without delay.

"As a chairman his outstanding characteristic was the ruthless manner with which he brushed aside technical and other details and went straight to the heart of a problem and then insisted on its solution.

"His understanding of the technical and theoretical aspects of subjects which needed decision was almost non-existent. Yet he saw very clearly the importance of having a chemical industry which was technically capable of holding its own with the giants of Germany and America."

## Chemical and Petroleum Engineering Exhibition Plans Being Laid

**B**ETWEEN 400 and 500 exhibitors will take up 240,000 sq. ft. of space at Olympia for the second Chemical and Petroleum Engineering Exhibition. To be held from 20 to 30 June next year, the exhibition will feature chemical plant, oil drilling, transport and refinery equipment. Joint sponsors are the British Chemical Plant Manufacturers' Association and the Council of British Manufacturers of Petroleum Equipment.

During the exhibition the third congress of the European Federation of Chemical Engineering will feature symposia on 'Process optimisation', 'Interaction between fluids and particles', 'The handling of solids' and 'The physics and chemistry of high pressures'. From 25 to 28 June, the fourth congress of the Federation of European Petroleum Equipment Manufacturers will be held at Church Hall, London S.W.1, with papers covering automation, new corrosion-resistant materials, temperature insulation, aircraft refuelling and future trends in drilling equipment.

The exhibition will cover petroleum and chemical processing and exploitation with plant, equipment, instruments, materials of construction and ancillary mechanisms for the extraction, produc-

tion or handling of heavy chemicals, fertilisers, explosives; fine chemicals and pharmaceuticals; man-made fibres, plastics, resins, synthetic rubber; paints, varnish, cement; coal derivatives, coal-tar and petroleum products; chemical and petroleum fuels.

Oilfield and refinery equipment of all kinds will be shown, some of it by firms able to contract for complete refineries, chemical works, drilling rigs, pipelines or pumping and storage installations anywhere in the world. Among exhibitors will be those who are also manufacturers of nuclear and conventional power plant or suppliers of equipment for rocket fuel production.

Individual processes will be covered by firms who specialise in heat transfer, distillation, absorption, insulation, evaporation, crystallisation, filtering, drying, mixing, sizing and tableting. There will be fabricators of new and conventional materials, including metals, plastics and ceramics used for high temperature applications or in corrosive environments.

The exhibition is being organised by F. W. Bridges and Sons Ltd. whose founder, Frederic Bridges, was responsible for the first International Chemical Engineering and Industries Exhibition at the Agricultural Hall, Islington, in 1911.



# CHEMICAL ENGINEERING ADVANCES FEATURE IN U.K.A.E.A. REPORT

THE bringing into full-scale operation of the new fuel element factory at Springfield, the starting of pilot-scale production of more advanced types of fuel elements for prototype reactors, and a steady reduction in the unit cost of plutonium extraction due to plant improvements at Windscale were features of U.K. Atomic Energy Authority activities in the year 1 April 1960—1 March 1961, discussed in the Authority's seventh annual report (H.M.S.O., 5s). The report also notes that uranium supply and demand became even more out of balance during the year, and further steps were taken to limit and stretch out the Authority's liabilities.

At Springfield, the main plant for manufacturing uranium tetrafluoride by fluidisation techniques came into full production and is now yielding good quality material at the designed throughput. At Windscale, the main chemical extraction plant achieved a considerably increased throughput by modifications to the main separation unit and the construction of additional facilities for processing the increased quantity of plutonium now being fed to the plant. Work is proceeding on the construction of the new separation plant required to process the irradiated fuel which will arise from the nuclear power stations operated by the electricity boards.

The Capenhurst isotope separation operations featured a 4% increase in plant efficiency in the diffusion plant. Better operating procedures have reduced the occurrence of unwanted residues which are formed by the chemical breakdown of uranium hexafluoride.

Comparative cost studies of various reactor systems have revealed that the potential of the magnox system will be restricted by inherent limitations of the fuel materials. The advanced gas-cooled reactor using oxide fuel will operate at higher temperatures and has the potential of producing power at a lower cost. The studies have also shown that the development of both gas-cooled reactors and of some forms of water moderated reactor could lead to still further cost reductions.

*Chemical Engineering.* Fluidisation—a technique of increasing importance in the chemical industry—has been the subject of a number of experiments at Harwell, one investigation being aimed at relating the formation and behaviour of bubbles in the fluidised beds to the movements of the gas and solids. This work suggests that bubbles—often thought to be a disadvantage and a sign of gas channelling—may help to promote gas mixing. In experimental work on tapered beds for use in single stage countercurrent fluidised bed operations, one important conclusion is that there is a minimum bed height below which the

advantages of countercurrent flow may not be obtained.

Wet steam is used as the coolant in a promising technique for removing heat from a reactor or chemical plant which is being investigated at Harwell. If the water in the steam is present as a film or spray very high heat removal efficiencies can be obtained, but the effi-

ciency falls if the steam becomes too dry. Promising correlation data have been obtained at relatively low pressures and the work is being extended to higher pressures.

Electro-deionisation (in which ion exchange materials are incorporated into an electrolytic cell) has shown a number of advantages over the ion exchange method of treating radioactive waste in laboratory experiments. Higher concentration factors and the possibility of continuous operation has emerged. Although the results achieved with ion exchange justify continuing the development to the plant stage, the method cannot be used on a fully continuous basis since the ion exchange material has been chemically regenerated from time to time.

## N.B.C. Drive to Reduce Steelmaking Costs Discussed at S.C.I. Annual Dinner

ARRANGEMENTS have been concluded by the National Coal Board for the experimental injection of milled coal into blast furnaces. This will be a further step in the iron and steel industry's drive to reduce costs and raise productivity. Coal injected will fulfil the function of the coke it replaces by providing heat and gases for the production of iron ore.

This was stated by Lord Robens, N.C.B. chairman, when he proposed the toast of 'The Society of Chemical Industry' at the annual dinner held at Keble College, Oxford, on 12 July. Lord Fleck, S.C.I. president, was in the chair. (See also *CHEMICAL AGE*, 15 July, p. 91).

Lord Robens declared that at least 30% of the coke used in furnaces could eventually be replaced when the technique had been fully proved. In addition, as the coal injected is cheaper than the coke which would be replaced, considerations of fuel costs alone would make coal injection an attractive proposition. More than that, the substantial increases in blast furnace throughput, made possible by coal injection, provided an added



Dr. J. L. Ferguson, L.C.I. research and development director, and S.C.I. hon. treasurer, with Mrs. Ferguson, arriving at the Town Hall, Oxford, for the Civic reception

financial incentive when increased output of iron was needed.

In the new process, coal is injected automatically into the furnace through lances placed usually in the blast furnace tuyeres. The amount of coal injected is accurately controlled. The technique is quite new to this country.

The process is to be tried towards the end of this year by Stanton Ironworks Co. The injection equipment is being specially designed by Petrocarb Incorporated, the U.S. firm which recently pioneered the full-scale application of the coal injection technique in America.

Lord Fleck responded to the toast of the S.C.I. Sir William Ogg, past president, proposed 'The City of Oxford and the Guests' to which Alderman Lionel Harrison, Mayor of Oxford, responded.

### Methane Tanker

Methane Tanker Finance has been registered as a private company with an initial capital of £100 to carry on the business of shipowners, etc.

The Gas Council's scheme envisages two refrigerated tankers of about 11,000 tons capacity, capable of carrying 700,000 tons of liquid methane a year.



Lord Fleck, S.C.I. president, gives his presidential address at the annual meeting. Right is Professor Sir Cyril Hinshelwood who gave the S.C.I. Medal address on the chemistry of the living cell

## Overseas News

### FOUR DUTCH GROUPS PLAN PRODUCTION OF AMMONIA FROM NATURAL GAS

A LARGE-SCALE nitrogenous fertiliser facility is planned at Delfzijl, The Netherlands, by Royal Dutch/Shell Group, Royal Dutch Blastfurnaces, Royal Dutch Salt Industry and the Dutch State Mines. Use will be made of the large natural gas deposits in Groningen for the production of ammonia. A concession for gas exploitation is being sought by Nederlandsche Aardolie Mij., jointly owned by Royal Dutch Shell and Esso. D.S.M. plan a new fertiliser plant near Delfzijl and the four companies are discussing the possibility of combining the two projects.

#### A.K.U. and Amoco in Terephthalic Acid Venture?

Plans to establish a terephthalic acid plant in Holland as a 50-50 joint venture between A.K.U. and the Amoco Chemicals Corporation are now believed to be near completion.

The terephthalic acid will be used as a raw material for A.K.U.'s production of Terlenka, the company's Terylene equivalent. This raw material is now being imported from the U.S., but as Terlenka production is expanding rapidly, the company wishes to manufacture its basic material at home.

#### Italians Participate in Kuwait Chemical Project

An agreement for the production of chemicals in Kuwait has been signed by the Kuwait Government and the De Nora Co. of Milan. A new corporation, in which De Nora will hold 40% of the stock, will manufacture caustic soda, raw materials for plastics, oxygen, acetylene, chlorine, and nitrogen fertilisers.

The enterprise will use natural gas for power and for the production of chemicals.

#### New U.S. Company to Make Linear Polythene

A new joint company has been formed by Owens-Illinois Glass and National Distillers to make linear polythene. The new company, called National Petro Chemicals Corp., will own the plant being built by National Distillers at Houston, Tex. The plant with a capacity of about 60 million lb. of high density polythene a year will use the Phillips process. The plant will be operated by National Distillers U.S. Industrial Chemicals Division (see *CHEMICAL AGE*, 25 February, p. 329).

#### Houdry Butadiene Unit Licensed in Brazil

Petroleo Brasileiro, S.A. (Petrobras) has been licensed by Houdry-Brazilian Co. to construct a 29,000 tonnes/year dehydrogenation unit near Rio de Janeiro, it has been announced by

Houdry Process Corporation, New York. The Houdry unit will be situated at Petrobras' synthetic rubber complex now under construction at Duque de Caxias.

The dehydrogenation plant will have the flexibility to produce butadiene, the principal ingredient in synthetic rubber, from normal butane or mixtures of butane and butenes. Feedstocks will be furnished by Petrobras' new refinery, also located at Duque de Caxias.

As well as the dehydrogenation unit, Petrobras has licensed two large Houdry-forming units which are now under construction near Rio de Janeiro and Sao Paulo.

#### Hungary Seeks W. European Acetylene Plant

The Hungarian importing organisation Komplex is reported to be negotiating with a number of firms in West Europe with a view to purchasing plant for the manufacture of acetylene based on the partial oxidation of natural gas. The plant is needed in connection with a p.v.c. plant to be erected in northern Hungary. Further plant purchases envisaged are aimed at increasing Hungarian output of synthetic fertilisers.

#### Nylon Yarn Expansion for Chemstrand

Plans to expand nylon yarn capacity at Greenwood, South Carolina, by 200% have been announced by the Chemstrand Corporation, U.S. parent company of Chemstrand Ltd., London. The Greenwood plant has been in commercial operation only since last October. Construction of the expanded facilities is scheduled for completion by May 1962.

#### Southern Nitrogen Plan Big Ammonia Expansion

An expansion in anhydrous ammonia capacity from 100,000 to 150,000 tons a year is planned by the U.S. company, Southern Nitrogen. The expansion programme will cost \$5 million.

#### Dow Chemical Tanker Now on Regular Rotterdam Run

Dow Chemical International have introduced a service of eight voyages a year between Freeport, Texas, and Rotterdam of bulk tankers for the transportation of chemicals. The service will be carried out by the *Marine Chemist*, a special 17,000-ton tanker for this purpose, and will connect the Dow factories in Freeport and the Botlek industrial area of Rotterdam. Main chemicals to be transported are glycols, ethylene diamine, ethanolamines, synthetic glycerins, epichlorhydrin and various chlorinated solvents. Total tank capacity is of 2,500,000 gall.

The Antilles Shipping concern, New York, have sent the tanker *Pinnacles* to the Emden, West Germany, yard of Rhein Stahl Nordsee Werke GmbH for conversion into a chemicals tanker. Side tanks, of nickel-plated steel, will be for the carriage of acids and mid-tanks for normal cargoes. The vessel, built in 1944 and bought by Antilles from Shell Canadian Tankers Ltd., of Montreal, will be converted by September.

#### U.S.S.R. Plans New Natural Gas Pipeline

A natural gas pipeline is to be built linking a large gasfield discovered on the River Konda, east of the Urals, with the industrial centres of the Urals. Soviet geologists believe that the entire West Siberian lowland, occupying some 772,000 sq. miles, is rich in oil and gas. Two large oil deposits have recently been found there, the largest being the Shaimsk deposit on the banks of the Konda, 220 miles north of Tyumen. The other lies on the banks of the Ob, near Nizhnevartovskoye.

#### Delrin, Propylene, Alkyl Benzene Know-how for Japan

Technical information on the production of Delrin polyformaldehyde is being sought from E.I. du Pont de Nemours by Ywata Chemical Co., Japan.

In connection with their plans to produce polypropylene under Montecatini licence, Sumitomo Chemical are to purchase Stone and Webster's propylene refining technique at a cost of \$70,000 for a 33,000 tonnes/year plant. At present, Sumitomo are producing ethylene and propylene using the S. and W. naphtha cracking process. An application to introduce Universal Oil Products' technique for a 15,000 tonnes/year alkyl benzene plant is awaiting approval.

#### Carbon Black Saturated Polyolefin from Nobel

A new plastics material whose structure is that of a thermoplastic but which is processed to a duroplastic has been developed under the name of Trolen DUR by the Troisdorf, West Germany, firm of Dynamit Nobel AG. Said to combine the good qualities of both types of plastics, this is a carbon black-saturated polyolefin. Properties are lightness, high mechanical qualities and retention of shape in heat, excellent impact strength and notch impact strength at low temperatures, very good dimension stability, exceptional chemical resistance, weather resistance and facility of tool processing.

#### United Carbon French Plant Goes On Stream

New carbon black plant of United Carbon France S.A., subsidiary of United Carbon Co., Houston, has gone on stream at Port Jerome. Reactor shake-down trials have been completed and commercial production has begun. The new \$5 million plant will produce 50 million lb. of furnace black a year.

This plant is the first in the Common



Market to use fuel oil as a raw material which eliminates the necessity of being located near a source of natural gas. Carbon blacks manufactured are HAF, ISAF and FEF. Built by Compagnie Francaise d'Enterprises, the plant is one of the most modern and efficient carbon black producing facilities in the world and requires a staff of only 65.

With seven plants in the U.S., and other operations in Great Britain and Australia, United Carbon are currently constructing carbon black plants in California and Venezuela.

### Hoechst Gosei to Make Polyvinyl Acetate in Japan

Hoechst Gosei is the name of a company set up in Japan on a 50-50 basis by Farbwerke Hoechst and Nippon Synthetic Chemical Industry. With a capital of 180 million yen, the new company will use Hoechst know-how for the production of polyvinyl acetate.

### Price Cuts for Two Types of Du Pont Neoprene

Price reductions for two types of neoprene synthetic rubber have been announced by Du Pont de Nemours International S.A., Geneva. From 1 August the price of Neoprene WHV will be reduced by 2 cents/lb. and the price of Neoprene Latex 842-A will also be reduced by the same amount for tank car quantities. A spokesman for the company states that the price reductions were made possible by improved manufacturing techniques.

### New Q.V.F. Factory for Wiesbaden

Q.V.F. Glastechnik GmbH, German subsidiary of Q.V.F. Ltd., Stoke-on-Trent glass chemical plant and pipeline manufacturers, are building a new 41,000 sq. ft. factory at Wiesbaden-Schierstein, due to be completed this autumn. The factory will replace existing premises in Wiesbaden-Biebrich.

### New Fertiliser Plant for Spencer Chemical

A new fertiliser plant is planned by Spencer Chemical at Pittsburg, Kan. The plant, which will make 50,000 tons a year of 30% nitrogen and 10% phosphorus fertiliser, is expected to be completed by early 1962. The prilled fertiliser process which will be used was developed by Spencer.

### Butylene Glycol Production Planned in Japan

Dainippon Kasei of Japan are to install plant for the production of 1,3-butylene glycol and butyl glycol with between 200 and 300 tons/month capacity for each. The company is negotiating to purchase butylene glycol know-how from Celanese of America and butyl glycol technology from Chemische Werke Hüls. Plant will be built at Ohtake, site of newly-planned facilities for acetic acid, butanol and butyl acetate.

### Urea Expansion for Leuna

The German Soviet Zone chemical producers VEB Leuna-Werke Walter Ulbricht, of Leuna, are to raise their urea capacity from 13,000 tonnes to 18,000 tonnes/year. This is stated in connection with the starting of test production at Leuna of a unit for feeding the urea plant with highly-concentrated carbonic acid.

### Mitsubishi-B.A.S.F. Link for Expanded Polystyrene

Badische Anilin and Soda Fabrik AG and Mitsubishi Petrochemical Co., are to set up a jointly owned company, temporarily known as Yuka Badische K.K., to produce 3,500 tonnes of foamed polystyrene a year at Yokkaichi. Production is scheduled to start in January 1963. Capital of the new company will total 300 million yen, with 51% held by Mitsubishi and 49% by B.A.S.F.

### Large Synthetic Rubber Plant for U.S.S.R.

Initial production has started at Stavropol, in the Soviet Union, of what is claimed to be one of the biggest synthetic rubber plants in Europe. Output is at present based on butadiene from Soviet producers but before the end of this year the starting material will be changed to local oil refinery products.

### Reinforced Plastics Road Tanker Shown in Italy

Glass fibre reinforced plastics is the material used for the body of road tanker shown at the recent International Milan Fair by Cicala e Bertinetti of Via Porro 7, Turin. The material used is a polyester resin, Gabraster, produced by Montecatini, while the reinforcing material is Vetrotex produced by Società Balzaretto Doigiani.

## New Process for Urethane Foam Laminates Said to Cut Costs by 48%

A NEW method of producing urethane foam laminates developed by Collins and Aikman, New York and London, and covered by their U.S. patent 2,841,205, is said to cut foam processing costs by as much as 48%.

The process is licensed to Foam Flex Corporation, a subsidiary of the Technifoam Corporation, New York, and according to *Chemical Week* 8 July, p. 45, can produce a thin, 1/16 to 3-in. continuous sheet at a rate of more than 100 ft./minute; with minor modifications in the equipment sheets of more than 8-in. thick can be produced. This performance compares with other slabbing techniques which produce a block of foam, usually 18-30 in. thick at a rate of 6-18 ft./minute.

Sheet produced on the Technifoam equipment requires little or no trimming and as it is made to finished thickness,

The tank is 12 ft. long, 5 ft. 3 in. wide, and 3 ft. 3 in. high. It holds 4,500 litres and, excluding the rectangular base supporting it, weighs 175 kg. or nearly 58% less than a similar structure in iron (410 kg.) and is considerably lighter than a tank of the same size made of aluminium.

The new tank can be used safely for transport of numerous aggressive chemicals as well as petroleum products, beer, milk, etc.

### Asahi Chemical Plan to Buy Nylon Know-how

Asahi Chemical Co. have sought approval to purchase caprolactam know-how from Zimmer, the process using cyclohexane, and nylon-6 know-how from Firestone. The Firestone licence will cost \$300,000 plus 2 cent/lb. royalty on fibre. Asahi will build a caprolactam plant at their Fuji works, with initial capacity for 6 tonnes/day and a second stage to be completed by end-1964 bringing capacity up to 16 tonnes/day.

### U.S.-Italian Agreement on Nuclear Fuel Re-utilisation

The Italian Nuclear Energy Board, C.N.E.N., have signed an agreement with Allis Chalmers Manufacturing Co., U.S., concerning the design and construction in southern Italy of plant to process combustion products of exhausted uranium-thorium fuels with a view to their re-utilisation.

### Ammonium Nitrate Sales in Belgium

A new Belgian Royal decree lays down a revised specification for what can be lawfully sold as 'ammonium nitrate'. Minimum content of ammoniacal nitrogen and nitric nitrogen combined is raised from 15.5% to 22%. The decree comes into force on 1 October and will permit the sale of ammonium nitrate with the lower content to continue until 1 May, 1962, provided that the product is still in the retail trade at 1 October.

cutting costs are eliminated. Backing materials are bonded to urethane in the machine without the use of an adhesive. The use of special silicone-treated paper that can be peeled off gives unbonded foam.

The machine can be quickly switched from flexible foam to rigid foam production. Technifoam have also developed a technique for feeding rigid backing sheets on to both sides of the foam while in the curing stage; this will permit the production of sandwich panels used in building construction which are usually made by pouring the urethane raw materials into upright moulds.

Mr. Howard Effron, and Mr. J. Lamoureux, president and sales manager of Technifoam, have been in the U.K. and on the Continent recently on a sales tour that took them to the Interplas Exhibition, London.

## Report on Toxic Farm Chemicals

SIXTH report of the Estimates Committee, Session 1960-1961 (Stationery Office, 15s 6d), has expressed concern over the "most alarming evidence of serious mortality among wild life in the spring of 1961, due to the use of toxic chemicals".

The report strongly urges action by the Ministry of Agriculture. On 3 July, the Government fulfilled a recommendation for the immediate prohibition of the use of aldrin, dieldrin and heptachlor on spring-sown cereals (see *CHEMICAL AGE*, 8 July, p. 53).

The recommendations of the report are: That Ministers should make the fullest use of their resources to assist the Nature Conservancy in fulfilling its responsibility for the conservation of wild life.

That they should initiate a comprehensive inquiry into the effect upon agriculture, public health, and the ecology of the country of all chemicals used in agriculture.

That the requirements of the notification scheme for the use of toxic chemicals should be revised so as to ensure closer supervision over the use of all toxic chemicals in agriculture, in particular by means of requirements obliging manufacturers to conduct comprehensive tests and field trials according to standards laid down by the Ministry of Agriculture.

## New Laboratory for B.W.R.A.

The new 21,000 sq. ft. engineering laboratory of the British Welding Research Association at Abington Hall, Cambridge, was officially opened on 12 July by Lord Mills, a former Minister of Fuel and Power. The laboratory is stated to be capable of tackling any problem that may arise from the application of welding in industry. Facilities are included for pressure vessel, resistance welding and brittle fracture researches, previously carried out in converted stables and ex-Army huts at Abington.

The opening ceremony preceded a two-day exhibition of welding research which was attended by over 1,200 industrialists, engineers and representatives of scientific and professional organisations. Among the exhibits was a friction welder built by the Association and examples were shown of successful welds in light alloys, stainless steels and titanium.

## Chemical Society Research Grants

Applications for grants from the Research Fund of the Chemical Society, which provides grants for the assistance of research in all branches of chemistry, will be considered next November and should be submitted on the appropriate form not later than 15 November 1961. Forms of application together with the regulations governing the award of grants may be obtained from the General Secretary, The Chemical Society, Burlington House, Piccadilly, London W.1.

# Soviet Foreign Trade Minister Visits I.C.I. Plastics Division H.Q.

AT his own request, Mr. Nikolai S. Patolichev, the Soviet Minister of Foreign Trade, who opened the Soviet Exhibition in London on 7 July, last week visited the headquarters of I.C.I. Plastics Division at Welwyn Garden City. He met Dr. J. C. Swallow, chairman, and other division directors before touring the research and technical service laboratories.

With Mr. Patolichev were Mr. V. I. Rodnov, head of the Soviet Trade Delegation in London, and Mr. A. I. Ivanov, head of the U.K. Section of the Soviet Ministry of Foreign Trade. They were accompanied by Mr. Niall Macpherson and Mr. T. F. J. Latimer, of the Board of Trade.

The Soviet Union have been important customers of I.C.I. Plastics Division for some years and in 1960, the division staged a unique exhibition in Moscow and Leningrad featuring their plastics materials. Last year the company's sales to the U.S.S.R. and East Europe totalled

£5.5 million, an increase of nearly 70% over the previous year.



Dr. J. W. C. Crawford, research manager, left, with N. S. Patolichev and his interpreter, right, at the research laboratories of I.C.I. Plastics Division

## Orders for U.K. Petroleum Equipment Totalled Nearly £119 M. in 1960

ORDERS placed in the U.K. for petroleum equipment totalled nearly £119 million in 1960 against £117 million in 1959, the annual report of the Council of British Manufacturers of Petroleum Equipment reveals. These figures only cover oil companies resident in the U.K., and it is believed that those from other sources might be found to increase the figures by as much as 25%.

Orders for materials and equipment in 1960, with comparative figures for 1959 shown in brackets, included: bulk chemicals, catalysts, barytes, etc., £27.6 million (£25.6 million); laboratory equipment and chemicals, including hospital and medical supplies, £1.9 (£1.6) million; specialised equipment for oil refineries, etc., £6.4 (£3.1) million; tubulars, pipe fittings and valves, £11.6 (£12.1) million; pumps (excluding slush, oilwell

and kerbside), £2 (£1.7) million.

Concern that British Oil Equipment Credits Ltd. to date have only one customer—Petroleos Mexicanos (Pemex) was expressed by Mr. J. M. Storey, C.B.E., chairman of the C.B.M.P.E., in his report on the work of the Council for the year 1960-61. B.O.E.C. is a non-profit making subsidiary set up by C.B.M.P.E., and has so far received £7 million worth of orders from Pemex. Mr. Storey said that if this business was to be extended it would be necessary for someone to concentrate on interesting other potential customers. Mr. Storey felt it was time to consider the appointment of a deputy director, thus allowing Mr. G. V. Sims, director of C.B.M.P.E., and managing director of B.O.E.C., to give more time to extending the activities of B.O.E.C.

## Gas Council Chairman's Tribute to Trade Press

TRIBUTE to the value of the trade and technical Press was paid by Sir Henry Jones, chairman of the Gas Council, speaking at a luncheon given by the chairman and directors of Benn Brothers Ltd., proprietors of *CHEMICAL AGE*, at the Savoy Hotel, London, on 14 July.

The luncheon was in honour of Mr. A. H. Silcox and Mr. A. Walsby, editor and manager respectively for many years of *The Gas World*, on their retirement from Benn Brothers. There was a representative gathering from the gas industry, publishing and advertising.

Sir Henry said that the trade and technical Press gave its readers material they

enjoyed reading and the information which it recorded was also stored up and available for future reference. From time to time the trade and technical Press gave an industry a glimpse of how it looked to other people; the staff who wrote were detached, objective, honest and provided fair comment whether one agreed with it or not—and that was all very valuable.

In the unavoidable absence through illness of Mr. Glanville Benn, the chairman, Sir John Benn presided and made presentations to Mr. Silcox and Mr. Walsby on behalf of the directors.



## Commercial News

### British Tar Products

British Tar Products have declared a final dividend of 10% making a total of 15% for the year ended 31 March 1961. Trading profit was £120,311 (£122,039) and net profit £45,943 (£54,971).

### D.C.L.

Consolidated profit and loss account of the Distillers Co. Ltd. and its subsidiaries for the year ended 31 March shows a net profit attributable to the Distillers Co. Ltd., of £17,224,224 (£16,866,424), which after taxation adjustments, deductions for capital duty, etc., and capital retained by subsidiaries leaves £13.6 million (£12.5 million), which with the balance from the previous year makes £16.2 million (£14.8 million). Of this, £5.3 million (£5 million) is transferred to the general reserve.

The directors recommend a dividend of 8½% less income tax making 13½% for the year, the dividend being paid, subject to confirmation, on 20 October 1961, to shareholders on the register at 15 September 1961.

### Greeff-Chemicals

In his annual statement the chairman of Greeff-Chemicals Holdings Ltd., Mr. S. Bayliss Smith, says that the turnover of the operating company for 1960 exceeded fractionally that of 1959 but due largely to increasing competition and to a smaller extent to the recession in the motor car industry in the last few months of 1960, the trading profits were considerably less. Net profit before taxation was £257,111 (£245,001), net profit after taxation being £147,440.

Recommended dividend is 9%, making a total of 16½% on the ordinary share capital of £1.1 million.

### A.K.U.

Algemene Kunstzijde Unie (A.K.U.) reported sales of Fl. 76.1 million (£7.61 million) for the second quarter of 1961. This compares with Fl. 86.4 in the first quarter.

### Enka Corp.

The Enka Corp. of the U.S., a member of A.K.U., has reported a 6% rise in sales to \$48 million in the first 24 weeks of 1961, compared with the same period of 1960. Net profits were \$1,823,000 compared with \$683,000.

### I.C.I.A.N.Z.

Group sales of Imperial Chemical Industries of Australia and New Zealand, a subsidiary of I.C.I., fell £A500,000 to £A31 million in the six months ended 31 March. Most of the reduction has occurred since January. Group sales for the year ended 30 September 1960 were £A62.8 million.

The directors state that Government

- D.C.L. Recommend 8½% Final Dividend
- Turnover Up, Profits Down for Greeff
- I.C.I.A.N.Z. Sales Take a Fall
- Rotterdam-Rhine Pipeline Success

economic measures were responsible for the fall and add they see no prospect of improvement over the next six months.

The lower half-year's sales caused a fall of 26.8% in profits. To reduce the disparity in payments, the interim dividend is raised from the equivalent of 2.45% to 3% on a capital increased by a 3-for-7 scrip issue. The total dividend for 1959-60 was equal to 7%.

### Rotterdam-Rhine Pipeline

The Rotterdam-Rhine Pipeline Co., incorporated in Holland, whose 24 in. pipeline connecting Rotterdam with the Rhine has been in operation since July, 1960, report income during the six months ended 31 December, 1960, of Fl. 6.41 million of which Fl. 6.28 million was from oil transports. Operating costs, depreciation and interest payable on long-term loans have absorbed this amount, but the results have completely fulfilled the expectations, it is stated.

The pipeline is a joint venture of the Royal Dutch-Shell Group (40%), Gelsenberg and Mobil Oil of Hamburg (40%) and Caltex, New York (20%).

### Elektrizitätswerke und Chemische

The Swiss electricity and chemical producers Elektrizitätswerke und Chemische Fabriken AG, of Basle, announce for the financial year ended 31 March 1961, a net profit of 7,236,845 (6,712,197) Swiss

francs. Proposed for the 1960/61 period is an unchanged dividend of 40 francs/share minus taxes.

### NEW COMPANIES

PROGRESS PACKING (CHEMICALS) LTD. Cap. £1,000. Packers of chemicals, gases, drugs, medicines, etc. Directors: R. A. Whitty, P. E. Gooch, Mrs. M. Gooch and Mrs. J. L. Whitty. Reg. office: Fresh Wharf, Highbridge Road, Barking, Essex.

KABI PHARMACEUTICALS LTD. Cap. £1,000. To carry on in Great Britain and the Commonwealth business as manufacturing, analytical, consulting, pharmaceutical and general chemists, etc. Subscribers: W. H. Hicks and J. P. Powell (solicitors). Solicitors: William A. Crump and Son, 2/3 Crosby Square, London E.C.3.

### INCREASES OF CAPITAL

B. B. CHEMICAL CO. LTD., Ulverscroft Road, Leicester. Increased by £700,000, beyond the registered capital of £9,000,000.

GLAXO LABORATORIES LTD., 891-995 Greenford Road, Greenford, Middlesex. Increased by £5,000,000, beyond the registered capital of £70,000,000.

EXPLOSIVES & CHEMICAL PRODUCTS LTD., Finsbury Pavement House, Moorgate, London E.C.2. Increased by £145,000, beyond the registered capital of £155,000.

### Market Reports

#### SEASONAL LULL IN FERTILISERS

**LONDON** Trading conditions have been steady in all sections of the industrial chemicals market, with new business reasonably good for the period. There has been a fair movement of the routine soda products and potash chemicals against contracts, and an active interest continues to be maintained in borax and boric acid and in hydrogen peroxide. The demand for fertilisers has been seasonally quiet.

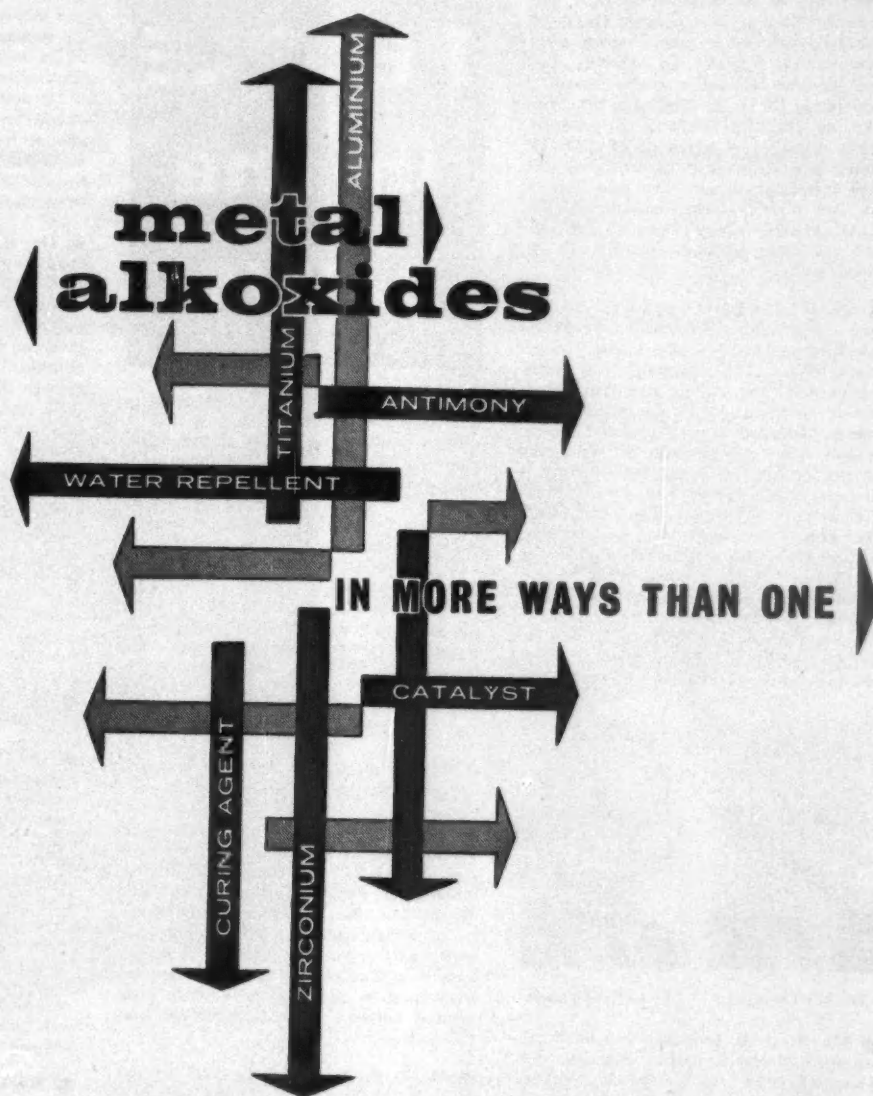
There has been a steady call for cresylic acid and creosote oil in a firm coal tar products market.

**MANCHESTER** Holiday stoppages at cotton and woollen textile mills and other outlets for industrial chemicals continue to affect the flow of delivery specifications under contracts and also the volume of fresh business. Under the circumstances trading conditions in most sections of the market for both light and

heavy chemicals on home trade and shipping accounts is regarded as reasonably satisfactory. Prices generally are steady to firm. Most of the tar products, including refined tar, most grades of creosote oil, and the tar acids, are moving regularly. Current trading in fertilisers consists largely of early delivery transactions in the compounds.

**SCOTLAND** The past week has been a particularly busy one in most sections of the industry, most demands being for immediate requirements. The Glasgow Fair holiday period commences this week-end, and, as already reported, some industries are completing productive programmes before closing. Also, in some cases, stocks are being augmented for commencing after the holiday period.

Except for metal derivatives, prices on the whole have been fairly steady. The export situation remains satisfactory.



Industrial demand for Spence metal alkoxides continues to rise as existing uses expand and new uses are developed. Problems in such diverse fields as the modification of plastics, transesterification catalysis or the promotion of adhesion may yield to the use of metal alkoxides.

For further details of these and other versatile organic metal compounds write to Product Development Department, Peter Spence & Sons Limited.



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● **Dr. W. H. MacLennan**, deputy gas and power works manager at I.C.I. Billingham Division, is to succeed **Dr. P. G. Harvey** as deputy ammonia works manager on 14 August. Dr. Harvey will then become ammonia works manager, succeeding **Dr. I. J. Faulkner** who will take up the appointment of products works manager in place of **Mr. M. D. Bone**, now appointed commercial services general manager. The new deputy gas and power works manager is **Dr. D. D. Martin**, whose place as gas section manager is taken by **Dr. D. J. Dijkman**.

● **Mr. W. Morgan Thompson**, who has been appointed chairman of Miles Laboratories Ltd., Stoke Court, Stoke Poges, Bucks, U.K. subsidiary of Miles Laboratories Inc., is the company's first British chairman. In succeeding **Mr. Don S. Momand** who retires on 31 July, he will retain his position of managing director. Mr. Momand will remain a director. Mr. Thompson is a former director of Monsanto Chemicals Ltd. The new laboratories of the recently formed Miles-Ames Research and Medical Division, the first basic research centre of Miles Laboratories outside North America, are nearing completion. Future fundamental research in the U.K. will be carried out by a team of British scientists headed by **Dr. Charles E. Dalglish**.



W. M. Thompson      M. J. B. Hodgson

● **Mr. M. J. B. Hodgson** has been appointed Midlands area manager for Rhodes Brydon and Youatt Ltd., makers of centrifugal pumps of Stockport. To be based on the company's offices in Griffin House, Ludgate Hill, Birmingham, 3, Mr. Hodgson has previously been area manager for the northern counties and technical representative in London.

● When **Mr. W. F. Mitchell**, director of co-ordination of chemical, Shell International Chemical Co. Ltd., London, becomes executive vice-president of Shell Oil Co. of Canada Ltd., Toronto, on 1 January, he will be succeeded by **Mr. Willem Starrenburg**, regional co-ordinator—oil for the Caribbean, Central and South America, and a director of Shell

## PEOPLE in the news

International Petroleum Co. Ltd. A science graduate of Queen's University, Kingston, Ont., **Mr. Mitchell** returns to a Shell company in which he spent an early part of his career. Aged 52, he started the former Chemical Industry Administration for Shell in 1950 and was responsible for co-ordinating all Shell commercial chemical activities outside the U.S. and Canada. **Mr. Starrenburg**, aged 53, graduated as a mining engineer at the Delft Technological University. He has served Shell as chief production engineer and Western Division manager in Venezuela as well as in the U.S. and The Hague.

● **Mr. Frank Schon**, chairman of Marchon Products Ltd., received the honorary degree of Doctor of Civil Law from the Chancellor of Durham University, the Earl of Scarborough, at King's College, Newcastle upon Tyne, on 8 July. A member of the board of Albright and Wilson Ltd., **Mr. Schon** is on the Council of King's College. He has played a major part in the rehabilitation of industrial West Cumberland and has been instrumental in building up a close connection between West Cumberland and the college.

● **Dr. J. F. Brown** of the staff of the Nickell Laboratories at the Ruabon works of Monsanto Chemicals Ltd., has been appointed research scientist with the company. This is the third appointment since the position was created in 1958 to provide an alternative line of advancement for outstanding technically qualified personnel wishing to follow a scientific or technological career rather than the usual administrative path. With 13 patents to his credit and many more pending, **Dr. Brown** will continue his work on synthetic organic chemistry.

● **Mr. L. J. A. Merckx**, engineering design manager at the I.C.I. Severnside Works, has been appointed engineering

manager of the European Council's Rotterdam site. New appointments at Severnside include **Mr. F. B. Hayes** as engineering manager and **Mr. G. M. Smith**, formerly construction projects manager at Wilton, as construction manager. In view of the approaching start-up of production operations at Severnside, **Mr. W. Dixon**, one of the original team of four which moved to Bristol at the end of 1957, will become Severnside site services manager with effect from 4 September.

● **Dr. B. J. A. Bard**, vice-chairman of Dracone Developments Ltd., has been appointed chairman of the company to succeed **Prof. W. R. Hawthorne, C.B.E., F.R.S.**, of Cambridge University, the inventor of the Dracone project, who will continue on the board as technical adviser. **Dr. Bard** is also a member of the National Research Development Corporation which in 1957 established Dracone Developments Ltd. as a subsidiary company to exploit the use of the Dracone—the plastic, towable container designed for the transporting of liquids lighter than water. A second senior appointment of **Rear-Adm. G. A. M. Wilson**, who has been made chief executive of Dracone Developments. He was formerly deputy engineer-in-chief nuclear propulsion at the Admiralty.

● **Mr. T. L. Birrell** has joined the board of Yarsley Research Laboratories.

● **Dr. Wilfred F. Coxon, F.R.I.C.**, managing director of W.P.R. Ltd., public relations consultants, 184 Fleet Street, London E.C.4, has also joined the board of C. P. Wakefield Ltd., advertising agents, 152 Fleet Street, E.C.4, as joint managing director with **Mr. R. J. Wakefield**. **Dr. Coxon**, who has worked as a chemical engineer with Turner and Newall and I.C.I., is author of 'Flow Measurement and Control', 'Temperature Measurement and Control' and 'Automatic Process Control.' He will be responsible for a newly-formed industrial division with C. P. Wakefield.

● **Mr. James D. Sutherland** has been appointed to the board of Scott Boag Paper Sales Ltd., the selling company for Papropack Ltd., Hull.

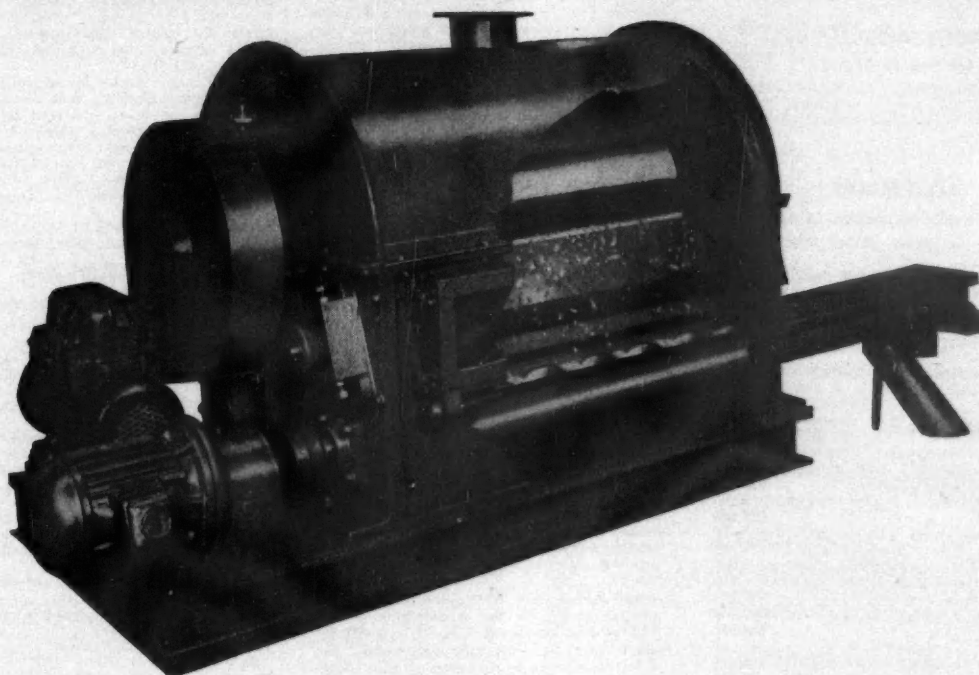
● **Mr. Timothy J. Benn** has been appointed advertisement manager of the *Newspaper Press Directory* and will be responsible for display advertisements in the 111th edition now in preparation. **Mr. Benn** is the second son of **Sir John Benn, Bt.** Since leaving Cambridge he has been working at Bouverie House as a representative with the *Newspaper Press Directory*, *Printers' Sales & Wants Advertiser*, and the *Printing & Allied Trades Directory*.

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Specifications filed in connection with the acceptances in the following list will be open to public inspection on the dates shown. Opposition to the grant of a patent on any of the applications listed may be lodged by filing patents form 12 at any time within the prescribed period.

## AMENDED SPECIFICATIONS

On Sale 16 August

New perfluoroalkylphenothiazine derivatives. Smith Kline & French Laboratories. 829 246  
Preparation of Isoprene. Goodyear Tire & Rubber Co., The. 832 475

## ACCEPTANCES

Open to public inspection 16 August

Anti-ozonants for rubber. United States Rubber Co. 875 151  
Method for the preparation of poly substituted hydrazine derivatives. United States Rubber Co. 875 152  
One-component light sensitive diazotype material. Chemische Fabrik L. Van Der Grinten N.V. 875 307  
Herbicidal compositions. Badische Anilin- & Soda-Fabrik AG. [Addition to 849 794.] 875 948  
Herbicidal compounds and compositions. Du Pont de Nemours & Co., E. I. 874 928  
Preparation of oxygenated compounds by carboxylation of olefins. Esso Research & Engineering Co. 875 059  
Method of producing sodium hydride. Kali-Chemie AG. 875 103  
Piperazine compounds and methods for their production. Parke, Davis & Co. 875 104  
Preparation of diaminopimelic acid and an intermediate hydantoin derivative therefrom. Du Pont de Nemours & Co., E. I. 875 353  
Production of L-lysine. Du Pont de Nemours & Co., E. I. 875 354  
Aminodiboron compounds and method of making same. United States Borax & Chemical Corp. 875 051  
Polyvinyl chloride with bacteria-repellant properties. Farbenfabriken Bayer AG. 875 355  
Storage of diisocyanates. Du Pont de Nemours & Co., E. I. 874 951  
Manufacture of Grignard reagents. Hoffmann-La Roche & Co. AG, F. 875 056  
Production of isoprene. Shell Internationale Research Maatschappij N.V. 875 346  
Chlorination of butene-(2)-diol-(1,4). Badische Anilin- & Soda-Fabrik AG. 875 050  
N,N-disubstituted  $\alpha$ -aminoalkylethers of alcohols of the aromatic aliphatic series and a process for the production thereof. Asta-Werke AG. 875 060  
Trifluoromethyl substituted phenoxazines. Smith Kline & French Laboratories. 875 348  
Adducts of heterocyclic amides and thioamides with  $\alpha,\beta$ -unsaturated compounds. Rohm & Haas Co. [Divided out of 875 134.] 875 135  
Bromine-containing trioxetyl phosphate. Dux Chemical Solutions Co. Ltd. [Divided out of 874 905.] 874 906  
Self-extinguishing plastics and a process for the production thereof. Farbenfabriken Bayer AG. 875 099

Open to public inspection 23 August

Process for the halogenation of normally gaseous olefins. Associated Ethyl Co. Ltd. [Addition to 804 995.] 875 561  
Pyrimidine derivatives and the preparation thereof. Wellcome Foundation Ltd. (Burroughs Wellcome & Co. (U.S.A.) Inc.). 875 562  
Catalytic oxidation of non-aromatic compounds. Scientific Design Co. Inc. 875 531

Zinc and cadmium selenide hydrazinates. Merck & Co. Inc. 875 773  
Modified natural polymers. Du Pont de Nemours & Co., E. I. [Addition to 834 557.] 875 664  
5-alkylsulphonyl-2-alkoxyanilines and their salts. Du Pont de Nemours & Co., E. I. 875 533  
Organic phosphorus compounds and their manufacture and use. Ciba Ltd. 875 583  
Benzothiazole-2-sulphonyl-ureas and process for their manufacture. Hoechst AG. 875 584  
Treatment of coal distillation gases. Bergwer-haverband GmbH. 875 534  
Process for producing an aldehyde by the addition of carbon monoxide and hydrogen to olefinic compounds. Ruhrchemie AG. 875 565  
Plasticised compositions. Imperial Chemical Industries Ltd. 875 589  
Process for obtaining crystalline polyolefins with a high affinity for dyes. Montecatini. 875 758  
Process for the polymerisation of  $\alpha$ -olefins to linear high molecular weight highly crystalline polymers. Montecatini. 875 924  
Impregnation of carbonaceous materials with epoxy resins. Union Carbide Corporation. 875 835  
Preparation of carbalkoxy-alkyl-containing organopolysiloxanes. General Electric Co. 875 759  
Process for production of hydroxyalkyl thioethers. Bayer AG. 875 464  
Cold-curable organopolysiloxane compositions. Wacker-Chemie GmbH. 875 465  
Production of carbon disulphide. Courtaulds Ltd. 875 809  
Purification of pyrethrum extract. Olin Mathieson Chemical Corporation. 875 760  
Isothiocyanato-steroids and a process for their manufacture. Schering AG. 875 467  
Epoxide resins. Ciba (A.R.L.) Ltd. 875 811  
Process and apparatus for the production of sodium aryls. Hoechst AG. 875 594  
Metal-containing azo dyestuffs derived from dihydrazones and their production and use. Badische Anilin- & Soda-Fabrik AG. 875 786  
Hydroxy-carboxyl amino-carboxylic acid amides and process for their manufacture. Ciba Ltd. 875 668  
Alkaline earth metal lakes of monoazo dyestuffs of the benzene-azobenzene series and process for their manufacture. Hoechst AG. 875 871  
Polyene alcohols and acyl derivatives of same and a process for the manufacture thereof. Hoffmann-La Roche & Co., F. 875 761  
Polyene carboxylic acids and esters thereof and a process for the manufacture of same. Hoffmann-La Roche & Co., AG, F. 875 713  
Diagnostic compositions. Miles Laboratories Inc. 875 609  
Process for the manufacture of chlorine dioxide. Hoechst AG. 875 791  
Compositions comprising benzene hexachloride. Imperial Chemical Industries Ltd. 875 877  
Steroids and the manufacture thereof. Uniohn Co. 875 570  
Monoazo pigment dyestuffs. Bayer AG. 875 882  
Polymerisation of olefins. National Lead Co. 875 793  
Chromiferous benzene-monoazopyrazolone dyestuffs and process for their manufacture. Ciba Ltd. 875 839  
Production of polymeric material from monomeric epoxy compounds. Petrochemicals Ltd. [Addition to 785 053.] 875 954  
Copolymers of methacrolein and their production. Du Pont de Nemours & Co., E. I. 875 840  
Pyrimidines. Imperial Chemical Industries Ltd. 875 717  
Solubilisation of streptogramin antibiotics. Glaxo Laboratories Ltd. 875 702  
Triphenylalkylamines and stimulant compositions containing them. Imperial Chemical Industries Ltd. 875 955  
Purification process for streptomycin. Distillers Co. Ltd. 875 598  
Bonding of surfaces. Imperial Chemical Industries Ltd. 875 612  
Aliphatic aldehydes. Ciba Ltd. 875 956  
Disazo dyestuffs containing acid sulphonate ester groups and metal complexes thereof. Bayer AG. 875 888  
2-thiobarbanic acid, and their preparation. Ciba Ltd. 875 841

Process for preparing hexachloro-endomethylene-tetrahydrophthalan. Velsicol Chemical Corporation. 875 957  
Cupriferous triazo dyestuffs and a process for their preparation. Compagnie Francaise des Matieres Colorantes. 875 654  
Process for the purification of arsenic. Associated Electrical Industries Ltd. 875 898  
Phenothiazine derivatives. Soc. Des Usines Chimiques Rhone-Poulenc. 875 845  
Epoxide compositions. Union Carbide Corporation. 875 866  
Process for the desulphurisation of tetraorganodiphosphine disulphides. Koppers Co. Inc. 875 619  
Recovery and purification of boron trichloride. Dow Chemical Co. 875 899  
Production of hydrogen peroxide by anthraquinone process. Food Machinery & Chemical Corporation. 875 850  
Polymer compositions. Imperial Chemical Industries Ltd. [Addition to 838 325.] 875 601  
Iminodibenzyl derivatives. Rhone-Poulenc. 875 602  
Process for making cupric mercuric and plumbous selenides. Merck & Co. Inc. [Divided out of 875 773.] 875 774  
Process for the production of polymeric material. Imperial Chemical Industries Ltd. 875 853  
Process for producing secondary aliphatic phosphine oxides. American Cyanamid Co. 875 944  
Stabilisation of organopolysiloxanes. General Electric Co. 875 780, 875 728  
Production of higher ketones from saturated epoxides. Esso Research & Engineering Co. 875 856  
Process for the production of fluorobenzoic acids. Deutsche Gold- und Silber-Scheideanstalt. 875 655  
Copper containing triazo dyestuffs. Bayer AG. 875 672  
Manufacture of steroids. Upjohn Co. 875 822  
Preparation of 3-amino-isoxazoles. Shionogi & Co. Ltd. 875 458  
Temperature control process for making urea-formaldehyde resin fertilisers. Hercules Powder Co. 875 907  
Preparation of urea-dialdehyde starch derivatives. Miles Laboratories, Inc. 875 542  
Thermosetting moulding powders. Imperial Chemical Industries of Australia & New Zealand Ltd. 875 945  
Process for the production of a fertiliser compound. S.I.L.E. Soc. Italiana Leucite Per Azioni. 875 543  
Water-soluble azo dyestuffs containing ethene sulphonate acid amide groups. Badische Anilin- & Soda-Fabrik AG. 875 946  
Siloxane coating compositions. Midland Silicones Ltd. 875 605  
Manufacture of copolymerised polyureas. Toyo Kasei Industries Inc. 875 748  
Vulcanizates of polypropylene and rubber. Esso Research & Engineering Co. 875 947  
Organic complexes suitable for use as herbicides. Du Pont de Nemours & Co., E. I. 875 459  
Bromination of isoolefin-polyolefin copolymers with bromine-carrying-ion-exchange resins. Polymer Corporation Ltd. 875 731  
Quinone derivatives. Bayer AG. 875 948  
Preparation of boron nitride. Union Carbide Corporation. [Addition to 874 166.] 875 749  
Stabilised soaps, synthetic detergents and mixtures of the same. Badische Anilin- & Soda-Fabrik AG. 875 720  
Heterocyclic thiophosphoric acid esters and pesticidal compositions containing them. Chemische Werke Albert. 875 828  
Process for the preparation of 19-nor-steroid compounds. Organon Laboratories Ltd. 875 549  
Cross-linking of polyethylene. Anaconda Wire & Cable Co. 875 734  
Processes for the preparation of catalysts for the polymerisation of olefinically unsaturated hydrocarbons and for the preparation of polyolefinic-hydrocarbons; and the resulting catalysts and polymers. Shell Internationale Research Maatschappij N.V. 875 735  
Steroids. Laboratoires Francais de Chimiotherapie. 875 751  
Process for the production of polyoxymethylenes. Farbenfabriken Bayer AG. 875 722  
Resinous composition. American Cyanamid Co. 875 949  
Roasting of sulphides. International Nickel Co. of Canada Ltd. 875 554  
Process for the production of eupolyoxymethylenes. Deutsche Gold- und Silber-Scheideanstalt. 875 558  
Stabilisation of high molecular weight polyformaldehyde. Badische Anilin- & Soda-Fabrik AG. 875 560

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### New Abrac Products

Among the new products of A. Boake, Roberts and Co. Ltd., Carpenters Road, Stratford, London, E.15, is Eos, an epoxidised oil based development material currently undergoing evaluation as an epoxy resin additive. It is reported to give improved wet strength to glass-fibre reinforced epoxy resins. Also available is Pliabrac HRP, a new plasticiser for high temperature vinyl insulations and di-iso-octyl azelate, a low temperature plasticiser for polyvinyl chloride.

### Electroplating Data Sheets

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vat and barrel plating under a wide range of conditions. The Acid Hard Gold method of plating printed circuits, bright gold plating, and the Galvoric immersion process for decorative uses are covered, and also palladium plating and the recently introduced DNS platinum process, which produces bright, heavy and coherent deposits.

### Change of Name

Victor Blagden and Co. Ltd., Plantation House, Mincing Lane, London E.C.3, have changed their name to Blagden and Noakes (Holdings) Ltd.

### 'K' Monel

Data for the engineer designer are provided in a new publication on the properties and applications of 'K' Monel nickel-copper alloy, issued by Henry Wiggin and Co. Ltd., Thames House, Millbank, London S.W.1. The publication consists mainly of charts and graphs on the physical and mechanical properties of the alloy with sections on the available forms and applications.

### Laboratory Furniture

Griffin and George Ltd. and Grundy Equipment Ltd., who have been associated for several years in the manufacture and marketing of metal laboratory furniture and laboratory apparatus, have formed a closer link whereby the Grundy

Group becomes responsible also for the manufacture of wooden laboratory furniture at their Cowley, Middlesex, and Mitcham joinery works. Marketing will continue to be handled solely by Griffin and George (Laboratory Construction) Ltd., whose sales department operates from High Street, Cowley, Uxbridge, Middlesex.

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### Price Cuts by A.C.C.

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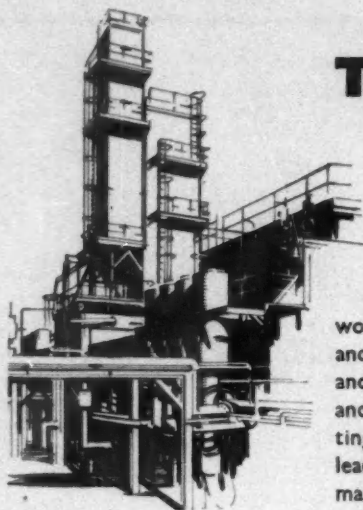
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